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INDUSTRIAL MEDICAL SERVICE.

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IN increasing numbers Australian industrial organizations are instituting systems of medical service to their employees and it is essential that the members of the medical profession and the employers interested should set before themselves clearly what a medical service should do and how this work should be undertaken.

With a view to ascertaining the number of existing industrial health services a *questionnaire* on this subject was addressed in November last by the Commonwealth Department of Health to the larger employers of labour throughout Australia.

From the replies received it would appear that at the present time in Australia forty medical men (seven full-time and thirty-three part-time) are engaged in this class of work. Five additional companies report that doctors are available through a medical fund, while twenty-one other companies state that medical men are on call in cases of emergency.

The seven full-time medical men are engaged as follows: One in a department store employing 800 males and 2,200 females; two in a Government railway department employing over 50,000; one in a Government railway department employing over 26,000; two by the Commonwealth Government to supervise 15,000 officers and one by a water supply and sewerage board employing over 2,000.

The thirty-three medical men on a part-time basis are engaged in thirty organizations, namely, four biscuit and confectionery factories, one clothing factory, three department stores, one motor body building works which has two factories and in which two medical men are engaged, two mining companies one of which employs two medical men, a newspaper company, one cordite factory, two rubber works, a smelter with two medical men, two water supply and sewerage boards, two gas companies, two lead works, one meat works, one photographic material factory, three railways and three tramways.

The numbers of employees engaged by the thirty organizations with part-time medical service are as shown in Table I.

At twenty-three establishments the full-time services of qualified nurses are engaged, while at ten others untrained nurses are employed. Forty-two other companies report that persons qualified in first aid are employed. Of the twenty-three establishments with qualified nurses, one has a full-time

TABLE I.
SHOWING NUMBERS OF EMPLOYEES ENGAGED IN THIRTY ESTABLISHMENTS.

Number of Employees.	Number of Establishments.
0 - 100	1 (Lead Works with 60 employees)
101 - 300	3
301 - 500	5
501 - 750	6
751 - 1000	1
1001 - 1500	4
1501 - 2000	6
2001 - 3000	1
3001 - 4000	1
4001 - 5000	1
10,646	1
	30

medical man, eleven have the part-time services of medical men, four a physician available in cases of emergency, one a doctor available through a medical fund, while in the remaining six establishments the nurse acts without medical assistance. In the case of the untrained nurses, four are employed without medical guidance, two are under the supervision of part-time medical men and four have the assistance of doctors in cases of emergency.

According to the statements made by those in charge of industrial organizations replying to the *questionnaire*, the duties of the medical men engaged embrace one or more of the following:

In fourteen establishments physical examination of applicants for employment.

In seven establishments periodical examination of employees: These include two lead works in which the men occupied in lead processes are examined weekly and one Government ammunition factory where certain employees handling dangerous chemicals such as the tri-nitro-toluene are examined weekly. At one chocolate factory each employee is examined weekly with a view to the prevention of contamination.

In five establishments hygienic supervision of working conditions.

In five establishments lectures and classes on first aid and sanitation.

In twenty-three establishments treatment of accidents and sickness occurring during working hours.

The duties of the nurses were defined as including one or more of the following:

In five establishments keeping records of cases of sickness and treatment given.

In four establishments home visiting of the sick.

In three establishments other duties such as librarian, restaurant manager and so forth.

In two establishments interviewing applicants for employment.

In two establishments sanitary inspections and advising employees on matters of health and hygiene.

In two establishments supervision of ambulance boxes.

In one establishment to issue recommendations in regard to dentists, hospitals, relief of employees from duty and so forth.

In thirty-two establishments the treatment of illness and accident occurring during working hours.

A study of the duties outlined in these replies indicates strongly that the main purpose of an industrial health service—the prevention of sickness, accidents and inefficiency among the employees—is lost sight of by many of the employers who have instituted these services. This is evident when one considers that at only five of the thirty-five organizations employing medical men has hygienic supervision of working conditions been considered of sufficient importance to permit of its inclusion in the list of duties, while at only two of the thirty-three establishments engaging nurses is mention made of sanitary inspection and advice to employees on matters of personal health and hygiene as duties of the nurse.

The objects of an industrial health service are to improve working conditions in the industry, to supervise the health of the workers and to educate the workers in personal hygiene. The main function of any industrial health service is to reduce or prevent as far as possible loss of time and physical impairment of workers, due to preventible causes.

The success of an industrial health service depends essentially on the medical man engaged. Should he confine his activities to actual treatment or examination work only, but little value will result from his services.

DUTIES OF AN INDUSTRIAL MEDICAL PRACTITIONER.

The duties of a medical practitioner, acting conscientiously as an industrial physician, be he engaged on a full-time or part-time basis, should embrace the following:

Hygienic Supervision of the Plant.

A close supervision should be exercised over all working conditions. Every part of the establishments should be regularly inspected, particular attention being paid to the detection of those influences which exert a deleterious effect upon the health of the workers. Particular regard should be paid to the ventilation, temperature, humidity, floor space per employee, the presence of harmful dusts, gases and fumes in the working places and so forth. Individual occupations should be studied as regards their monotony, concentration required and speed. It should be noted whether the drinking water supply is wholesome, if adequate toilet, locker and washing facilities are provided. Should any condition be found that should be rectified, the responsible head should be notified as to its nature, the harmful effects likely to ensue by its continuance and the means for its prevention or minimization.

Vocational Placement of Workers.

The industrial medical man should familiarize himself as thoroughly as possible with the physical

and temperamental requirements of the various occupations in the establishment. By so doing he is able to determine the particular occupation for which any individual is suitable and conversely the occupations for which the individual is unsuitable. In other words the aim is to fit the worker for the work.

Henry Ford writing on this subject in "My Life and Work" states:

> I have said that no one applying for work in our factories is refused on account of physical condition. . . . We are too ready to assume without investigation that the full possession of faculties is a condition requisite to the best performance of all jobs. To discover just what was the real situation, I had all of the different jobs in the factory classified to the kind of machine and work—whether the physical labour involved was light, medium or heavy; whether it were a wet or a dry job, and if wet, with what kind of fluid; whether it were clean or dirty; near an oven or a furnace; the condition of the air; whether one or both hands had to be used; whether the employee stood or sat down at his work; whether it was noisy or quiet; whether it required accuracy; whether the light was natural or artificial; the number of pieces that had to be handled per hour; the weight of the material handled; and the description of the strain upon the worker. It turned out at the time of the inquiry that there were then 7,882 different jobs in the factory. Of these, 949 were classified as heavy work, requiring strong able-bodied and practically physically perfect men; 3,338 required men of ordinary physical development and strength. The remaining 3,595 jobs were disclosed as requiring no physical exertion and could be performed by the slightest, weakest sort of men. In fact, most of them could be satisfactorily filled by women or older children. The lightest jobs were again classified to discover how many of them required the use of full faculties, and we found that 670 could be filled by legless men, 2,637 by one-legged men, two by armless men, 715 by one-armed men and ten by blind men. Therefore, out of 7,882 kinds of jobs, 4,034—although some of them required strength—did not require full physical capacity. That is, developed industry can provide wage work for a higher average of standard men than are ordinarily included in any normal community. If the jobs in any one industry or, say, any one factory, were analysed as ours have been analysed, the proportion might be very different, yet I am quite sure that if work is sufficiently subdivided — subdivided to the point of highest economy — there will be no dearth of places in which the physically incapacitated can do a man's job and get a man's wage. It is economically most wasteful to accept crippled men as charges and then to teach them trivial tasks, like the weaving of baskets or some other form of unremunerative hand labour, in the hope, not of aiding them to make a living, but of preventing despondency. . . .

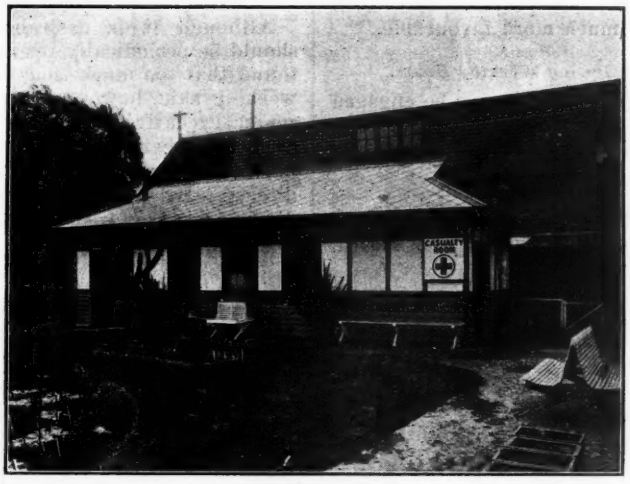

FIGURE I.
Casualty Room in a Railways' Department (Exterior View).

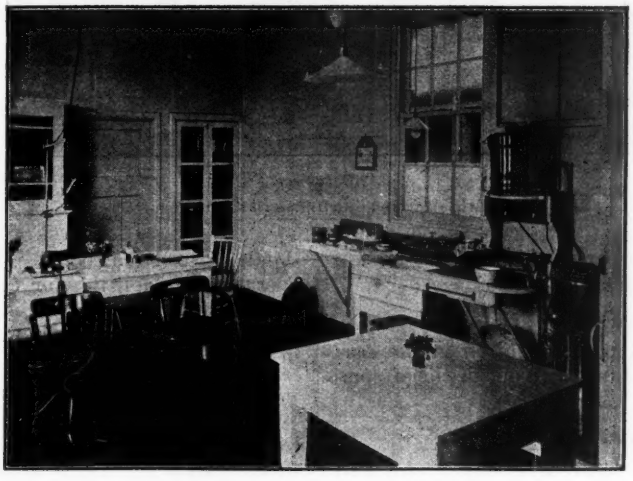

FIGURE II.
Casualty Room in a Railways' Department (Interior View).

Physical Examination of Workers.

Employees may be subjected to examination on the following occasions and for the following reasons:

Prior to Employment.

Apart from Governmental or semi-Governmental departments and municipal undertakings it is not the custom in Australia for employers to require a physical examination before employment. It was reported, however, from two chocolate factories, two private gas works and one department store (young persons only) that the physical examination of applicants for employment was one of the functions of the medical men attached to them. It must be emphasized here that the object of this examination should not be to eliminate the physically unfit, but to determine the particular occupation for which the examinee is suitable. The Conference Board of Industrial Physicians, America, recommend that the only

applicants who should be rejected, are those who are likely to be dangerous to themselves, to others or to property.

After Absences Due to Sickness or Injury not under Observation.

By examinations after absences due to sickness or injury not under observation diseases are found in their incipiency when the prospects of successful treatment and cure are much more favourable.

When Reporting Sick During Working Hours.

Should a full-time physician or nurse be engaged it should be made a rule that no employee be permitted to leave the works without first consulting the nurse or doctor.

Apparent Unsuitability for Position Occupied.

The Dayton Cash Register Company, America, requires the foremen in the different departments to place the various men employed under them into different grades according to the degree of satisfaction given in the performance of duties. Every person in the lowest grades is sent to the medical department for a physical examination and the medical director of these works reports that it is astonishing how frequently physical defects are found to be responsible for unsatisfactory performance of work. By remedying these defects or by placing the workers in occupations more suited to their physical or mental capacity a large percentage of these misfits may prove useful workers.

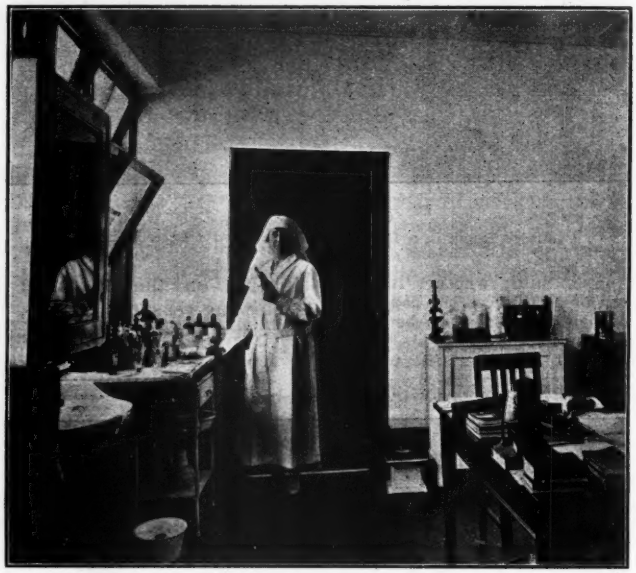

FIGURE III.
Consulting Room in an Industrial Establishment.

As a Guard Against Spread of Communicable Disease.

Examination is particularly required in the case of food handlers as a guard against spread of communicable disease.

In Occupations Dangerous to Health.

In England and in certain American States and Continental countries periodical examination of workers engaged in dangerous processes is required by law. In Western Australia *The Factories (Poisonous Substances) Regulations, 1924* require periodical medical examination of persons engaged in factories where lead or any poisonous compound of lead is used. Not only is periodical medical examination invaluable in detecting cases of poisoning in their incipiency, but through these cases being discovered attention is directed to the particular processes causing trouble and employers are forced in self defence to take the necessary measures to remove or minimize these causes.

Periodical Health Stock Taking Examinations.

Although it is desirable that every employee should be periodically re-examined, in practice it is found that too much time is involved. It is a good working rule, however, to examine at least all the senior executive officers in the establishment, say every twelve months, and other persons in whom previous examinations have disclosed evidence of disease. By these examinations the beginning of disease is recognized early and a function of "life extension" served.

Health Maintenance.

There are many influential factors causing ill-health that cannot be controlled within the place of work. The advantages of perfect condition of work may be nullified if the worker is ignorant of the elementary rules of hygiene. Industrial medical men should, therefore, endeavour to instruct workers in personal hygiene by means of lectures, personal talks, articles in shop papers and so forth on such subjects as proper clothing, food, recreation, exercise, rest, prevention of transmissible diseases, *et cetera*. Attention should also be directed to the procurement and operation of facilities for rest, recreation and exercise to particular groups of workers requiring those benefits and the means how they should be applied indicated.

Surgical and Medical Treatment.

Although the institution of medical and surgical treatment seems the most evident reason for industrial medical service, it must be emphasized that it is but one of several important functions.

Treatment should be confined to first aid in the case of injuries sufficiently severe to cause the sufferer to remain away from work, but all other injuries, whether sustained at work or not, should be treated until recovery. The prompt reporting of all persons sustaining injury, no matter how trivial,

is highly important, as by proper early treatment numerous cases of septic poisoning are prevented. The need for more effective treatment in accident cases is illustrated by the Queensland experience under the *Workers' Compensation Act*. In this State during the years 1917-1918 and 1922-1923 no fewer than 8,013 injuries became infected, resulting in eighteen deaths causing 171,498 days disablement and involving a compensation payment of £71,318.

Where the medical practitioner is only on a part-time basis, he should, if a nurse is employed, indicate the lines of treatment for injuries to be followed and at his visits supervise the treatment; if no nurse is employed, he should make certain that proper first aid facilities are available.

Medical treatment should be afforded to employees for all cases of minor ailments, those suffering from the more severe conditions being referred to the family physician, but at the same time kept under observation. In the case of part-time medical practitioners, if no nurse is employed, arrangements should be made with the management for all employees in need of medical advice to attend for consultation at certain stated times. Where a nurse is employed the doctor should prescribe certain methods of treatment for the minor ailments likely to occur and should instruct the nurse to refer to him all persons whom she considers require medical attention. In industries where the occupation subjects the workers to risk from some definite poison, such as lead, it is desirable that stocks of prophylactic medicines be kept and that the employees be encouraged to take these regularly under proper supervision.

FIGURE IV.
Rest Room in an Industrial Establishment.

General Duties.

Where sociological departments exist, the medical man should closely cooperate with them. Sometimes workers are unable to obtain adequate medical, nursing or dental attention for themselves or their dependants and the doctor through his knowledge of medical men, dentists, hospitals, clinics and nursing relief societies may be able to render valuable assistance. Advice given in this way creates the utmost feeling of goodwill, not only towards the doctor but to the company employing him.

Instruction of Medical Personnel.

The doctor should instruct any nurses or first aid attendants that may be employed in all matters relating to their duties and should carefully determine their competency. Classes for employees are also desirable and lectures on elementary first aid should be given. Instruction is sometimes necessary to enable workers to adapt themselves to their vocations and to guard themselves against risks that cannot be avoided. This applies, for example, to workers in lead. The issue of instructive pamphlets may be found useful.

Compilation of Records.

The efficiency of a medical department should not be judged by the number of persons who pass through seeking relief, but by the amount of time lost through illness among the employees. In the ability to reduce this amount of illness below the general or accepted average lies the test of the industrial doctor or nurse. For this reason every industrial medical man or nurse should keep accurate records of the work performed and of the amounts of sickness and accidents occurring in their establishments.

With the assistance of the Commonwealth Statistician, the Commonwealth Department of Health has prepared and printed certain forms for the keeping of industrial morbidity statistics on uniform lines and information concerning same will be furnished on request to the Director-General of Health. These records permit an analysis by occupations, processes and departments, and form a useful basis upon which a current index of the establishment's health conditions may be formed. Any abnormal amount of sickness from an individual department will probably indicate some detrimental agency there which requires remedial attention. These records require a proper clinical history card of every employee attending the doctor to be kept.

Duties of an Industrial Nurse.

The industrial nurse has for her duties not only the treatment of minor injuries and maladies under medical direction but also a general supervision over all matters affecting the health and well-being of the workers.

Where no physician is employed a limited supply of drugs for the routine treatment of certain of the common disorders may be kept, but the unrestricted use of medicines by the nurse is strongly to be deprecated.

The nurse should take every opportunity for instructing the workers by personal advice on healthy habits of living. She also should make

sanitary inspections of the establishment and bring under the notice of the management or the doctor, if one be engaged, any matters she considers require remedying.

By visiting the different departments she should endeavour to acquaint herself with the different workers engaged therein and gain their confidence. All persons who in her opinion require medical advice, should be persuaded to seek it.

The nurse should be in absolute charge of the rest room or house ward. It is with the girls attending these rooms that personal advice from the nurse is so valuable, as menstrual troubles may frequently be due to faulty personal habits.

When circumstances permit, the nurse may advantageously give professional aid by visiting employees who are away sick from work, home visiting being reported as one of the duties of the nurses in four Australian establishments. In this connexion it must be strongly emphasized that under no circumstances should the visiting nurse be used for the purpose of determining whether the employee is away from work through genuine illness or otherwise, as all confidence on the part of the workers would be destroyed if she were considered a spy for the employer.

Another important duty of the nurse is the keeping of records of the persons treated and of the amount of sickness occurring in the different departments.

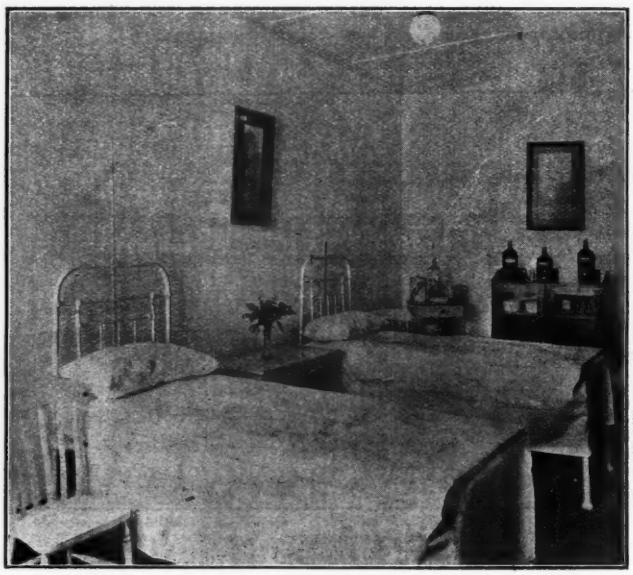

FIGURE V.
House Ward for Female Employees in an Industrial Establishment.

ACCOMMODATION FOR MEDICAL DEPARTMENT.

The accommodation required for an efficient medical department depends upon certain factors, such as the number of employees, their sex, the particular nature of the industry, the amount of sickness and accidents likely to require treatment and the number and variety of activities carried on by the physician and his staff. Generally speaking a surgery, consulting room and a rest room will be found sufficient.

The surgery should be of sufficient size to permit of the maximum number of dressings to be treated with speed and ease. A supply of hot and cold water should be available. Separate doors for entrance and exit should be provided. The ceilings and walls should be finished in white and the floors with a light coloured tile, preferably softened by white rubber mats, placed as desired.

A consulting room is essential when physical examinations are made. It may also serve as an office for the doctor or the nurse.

A rest room furnished with couches and arm chairs is desirable where females are employed. The room should be well lit and well ventilated. The nurse in charge should keep a careful eye on all girls making use of the room. Many industrial doctors, both in America and England, are inclined as a result of experience to discourage the use of rest rooms, as they consider they tend to foster in the girls a feeling that menstruation is a disease rather than a physiological process and that it is quite exceptional for menstruation to be so severe as to require actual cessation from work.

From replies received to the *questionnaire* surgeries for the treatment of accidents have been provided in fifty-four establishments in Australia, while it is reported that in twenty-four others remedies are kept for medical treatment. In ten establishments special rooms are provided furnished with one or more beds for the treatment of temporary indisposition, while in forty-six others rest rooms are provided.

The accompanying illustrations show the accommodation provided at several establishments.

EDUCATIONAL COURSES IN INDUSTRIAL HYGIENE.

All the medical schools in the United States of America which have courses in hygiene and public health, give eight to ten lectures on industrial hygiene and the more dangerous occupations. In 1918 Harvard University, the first institution in the world to do so, established a course of instruction and research leading to degrees in industrial hygiene. For the Certificate of Public Health in Industrial Hygiene courses are given on the applied physiology of industry, methods of air analysis, industrial toxicology, vital statistics, industrial sanitation, preventive medicine and hygiene, industrial health administration, employment management, workmen's compensation and the legal aspects of industrial diseases, nutrition, industrial surgery and medicine and orthopædic surgery.

One academic year is required to obtain this certificate which also may form the work of the first year for candidates for the Degree of Doctor of Public Health in Industrial Hygiene, the second

year being devoted to investigations into one or other of the phases of industrial health.

The Harvard University also arranges courses for medical practitioners who are interested. These courses last a month and consist of lectures and laboratory and field demonstrations in industrial medicine. The courses give a review of the problems and methods of industrial medicine. Half of the course is devoted to didactic instruction and half to clinical, demonstrations and visits to mercantile establishments. The subjects embraced are as follows:

Industrial Medicine—
- Industrial toxicology. Lectures upon the more important industrial poisons.
- Clinical industrial medicine. Lectures upon certain specific industrial diseases.
- Clinics, Industrial clinic. Observation of cases of industrial disease and methods for the study of industrial morbidity.

Industrial Medical Practice—
- Industrial medical service, including dispensary organization, personnel, methods and records; physical examinations, industrial psychiatry, health education.
- Nutrition, industrial cafeterias.
- Mercantile health work.

Factory Hygiene—
- Ventilation, exhaust systems, humidity, dust determinations.
- Illumination. Photometric determinations.
- Sanitary installations, rest rooms, *et cetera*.
- Industrial seating.

Industrial Operation—
- Industrial organization and methods.

Labour Legislation—
- Workmen's compensation laws: women and children in industry.

Field Investigation—
- Visits to representative industrial and mercantile establishments for study and observation.

The importance of industrial hygiene in the field of preventive medicine has not yet received recognition in the medical schools of Australia. The subject is practically ignored in the curriculum of undergraduates and no facilities are available to graduates for the study of the subject.

The industrial medical officer deals with the most important section of the community, the wage earners and producers, during their years of greatest activity. He is not merely a medical practitioner but has become a specialist in preventive medicine and, as has been proved in the foregoing, has many important functions to perform. It is highly essential, therefore, that educational facilities should be open to members of the medical profession desirous of undertaking this work, so that they may be in a better position to grasp the potentialities involved.

Australia may with great advantage follow the examples set by America and other countries and institute courses of study in the subject of industrial hygiene not only for the medical student but for the graduate in medicine. This can be done as part of a comprehensive system of public health training at a school of public health which should form an important part of each of our medical schools.

INTERPRETATION OF REPORTS ON OPAQUE MEAL EXAMINATIONS.

By Philip Parkinson, M.B. (Sydney),
Honorary Radiologist, Saint Vincent's Hospital, Sydney; Radiologist, Prince of Wales Hospital, Randwick.

The administration of opaque meals and enemata in conjunction with an X-ray examination as an aid to diagnosis, has become so well known that any plea for a more universal recognition of this method is unnecessary. A little explanation, however, of the method of reporting on such examinations might with advantage be given to practitioners who send patients for examination.

Method of Examination.

A standard method of performing these examinations is as follows: On the morning of the examination the patient is allowed to take a drink of tea, milk or water at 7 a.m., but is instructed to eat no food at that time and neither to eat nor drink after 7 a.m. until he presents himself for examination at 9 a.m.. He is not given an aperient on the evening before the examination, as this appears to interfere with the motility of the meal. At 9 a.m. he is given a "motor meal" of stiff arrowroot containing one hundred and eighty grammes (six ounces) of barium sulphate, after which a screen examination is made and films are taken. Two or three hours later he reappears for further screening and subsequently returns at the end of five or six hours from the time of the first meal for a second, easily taken "fluid meal" of malted milk with another one hundred and fifty to one hundred and eighty grammes of barium sulphate. The second meal is drunk whilst the patient is being screened, so that the œsophagus may be examined and a barium "bolus" administered if necessary. At the second examination the morning findings are reviewed and confirmed, the progress of the first meal through the bowel noted and further films taken if desired. The patient is then instructed to return the following morning for examination of the bowel. No examination of the bowel is complete without the administration of an opaque enema and if any bowel lesion is in question, an enema of malted milk and barium sulphate is given from a douche can, the opaque fluid being actually watched on the screen as it flows into the bowel and films are taken as required. In between the times of examination patients who are well enough to do so, are allowed to walk about or do anything they wish except to lie on their backs, the only stipulation being that nothing must be taken into the stomach between the first and second meals.

The Report.

On completion of the examination a report is prepared for the practitioner sending the patient. It has been found the better practice to make no comment to the patient on the findings at the

examination, although this is a very difficult rule to keep, as people seem to expect that the radiographer should make a diagnosis and are often very angry when he will not do so.

The report is arranged as follows:

Œsophagus.

There is usually something definite to report in regard to the œsophagus and the comment needs no explanation. For example, one says simply "no abnormality seen" or the abnormality is described in detail.

Stomach.

In reporting on the stomach the following headings are usually used: Position, tone, mobility, peristalsis, incisuræ and filling defects.

Position. The position of the stomach varies so much in various individuals and depends so much on the build or *habitus* of the patient that it is impossible to describe any one position for it which would serve as a standard normal. In the hypersthenic type the stomach is the so-called "steer horn" which lies transversely in the abdomen even in the standing position and all types of stomach are seen from this to that of the thin hyposthenic woman, heroine of many a child birth, whose greater curvature may reach the true pelvis and who may still have a stomach of apparently normal function. Thus one comes to look for certain types of stomach in certain types of individual and it is only when a person of one *habitus* is found with a stomach of a different *habitus*, that one begins to consider abnormality of position. For example a low, sagging stomach in a plethoric hypersthenic man suggests an abnormality which is usually found in an obstructive, long standing ulceration of the pylorus or duodenum: whilst a highly placed fixed stomach in a hyposthenic individual gives one a clue to adhesions from new growth or an inflammatory process whether following a former laparotomy or not. The position of the stomach may also be altered by conditions outside the alimentary tract altogether. Thus one sees the whole gastro-intestinal tract displaced in various ways by ascitic fluid, ovarian or uterine tumours, various kidney and gall bladder conditions, tumours of the pancreas, enlargements of the spleen, as well as other more rare pathological conditions. These things being so, the radiographer forms the habit of using his own judgement as to what might be considered the normal position for the stomach in the particular individual under examination. Thus the report indicates that the position is "normal for the subject" or the variation in position observed is described and a reason given for considering such a position abnormal in that particular individual.

Tone. Stomach tone is very important from the physician's or the surgeon's point of view and the tone of the stomach found should have an important bearing on the subsequent treatment of the patient. In progressive obstructive lesions of the pylorus or duodenum the stomach passes through a preliminary stage of hypertonia, followed by a gradual loss of tone until ultimately one sees the saucer-shaped, sagging, hypotonic stomach with varying degrees of residue at the end of six, twelve, twenty-four or even forty-eight hours from the ingestion of the meal. Such conditions are said to be more characteristic of slowly-advancing benign ulceration of the pyloro-duodenal region than of carcinoma, as though the stomach muscle at first responds to the commencing obstruction, but later gives up the struggle and resigns itself to the inevitable.

Mobility. Mobility refers to the ability or otherwise of the examiner to move the filled viscus about by palpation behind the fluorescent screen. The mobility varies within normal limits according to the build, intra-abdominal pressure and the condition of the anterior abdominal wall. Normally the stomach is freely moveable throughout its greater extent and any fixation of the viscus is suggestive of a pathological condition, especially when it occurs in the pyloro-duodenal region, where many intra- and extra-gastric conditions cause fixation or limitation of movement.

Peristalsis. One may observe on screen examination the peristaltic waves passing down the stomach and it is well to follow at least one or two waves throughout their whole course along the viscus. The effective peristalsis is that of the pre-pyloric area and even in stomachs of poor tone which have undergone ptosis, the pre-pyloric peristalsis may be active enough to secure a normal emptying time or motility of the meal. Peristalsis may be interrupted by an incisura as will be described later on or it may be seen that the wave does not pass over a certain area of the stomach wall which is usually found to be irregular and pathological. Hyperperistalsis is seen in irritative lesions associated with hypertonia and is a valuable indirect sign in pathological conditions of the appendix and gall bladder. The reverse condition, hypoperistalsis, is seen in advanced obstructive lesions of the pylorus or duodenum and in hypo-acidity from any cause.

Incisuræ. Incisuræ are deep contractions of the circular muscle fibres of the greater curvature, dividing the contour of the stomach and producing the well-known hour-glass appearance. They are constant in position and may be either permanent or transient in character. Permanent incisuræ are those seen at all examinations of the affected stomach and indicate an organic lesion, one being able as a rule to see an ulcer crater or niche on the lesser curvature opposite them. Transient incisuræ are reflex in origin and may be made to disappear and reappear by palpation or they may be so persistent as to require the administration of belladonna to cause their disappearance. They are reflex conditions and are associated with irritable lesions outside the stomach, of which by far the commonest is a pathological condition of the appendix or less frequently of the gall bladder or pancreas.

Filling Defects. Filling defects are those of the contour of the filled viscus and require no great comment. They are irregularities of outline associated with the projection into the stomach of tumour masses, ulcer craters, polypi and so forth and if observed are pathological.

ILLUSTRATIONS TO DR. A. V. MEEHAN'S ARTICLE.

FIGURE I.
Radiogram Taken on November 27, 1922, Showing Condition before Operation.
Note absorption of neck of femur.

FIGURE II.
Radiogram Taken on January 9, 1923, about Six Weeks after Operation.
Note increased atrophy in shaft of femur resulting from immobilization. (Condition exaggerated in the print.)

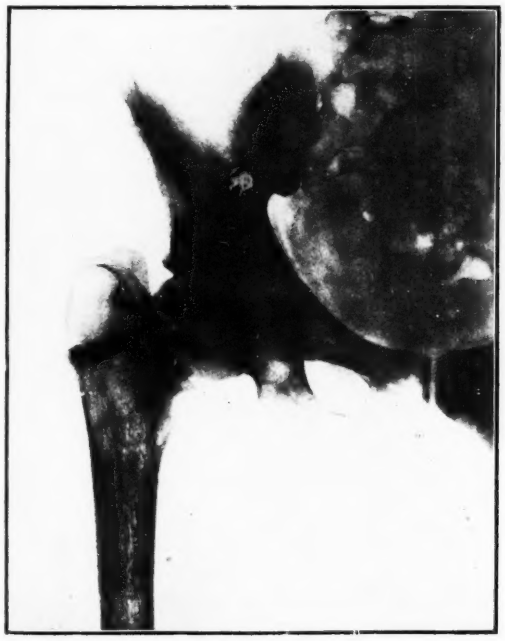

FIGURE III.
Radiogram Taken on June 12, 1923, Seven Months after Operation.
Note bending of graft and very slight callus formation at lower end of fracture.

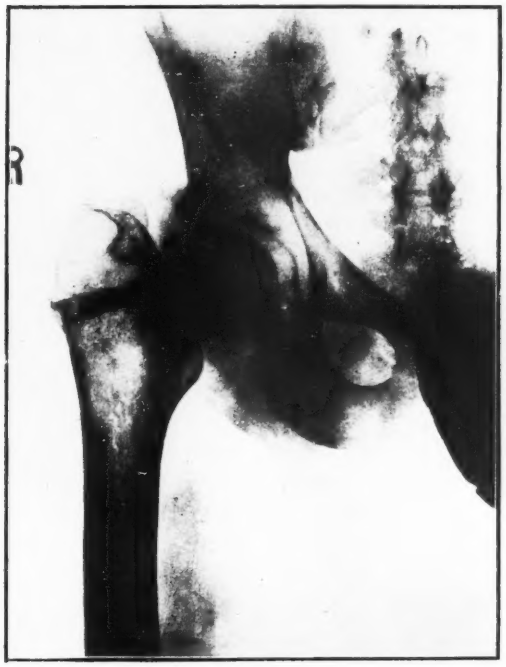

FIGURE IV.
Radiogram Taken on November 5, 1924, Two Years after Operation.
Note solid bony union and re-formation of neck of femur.

ILLUSTRATIONS TO DR. A. T. NISBET'S ARTICLE.

FIGURE I.
Skiagram of Typhoidal Abscess of Fibula.

FIGURE II.
Skiagram of Fractures of both Radii and Ulnæ.

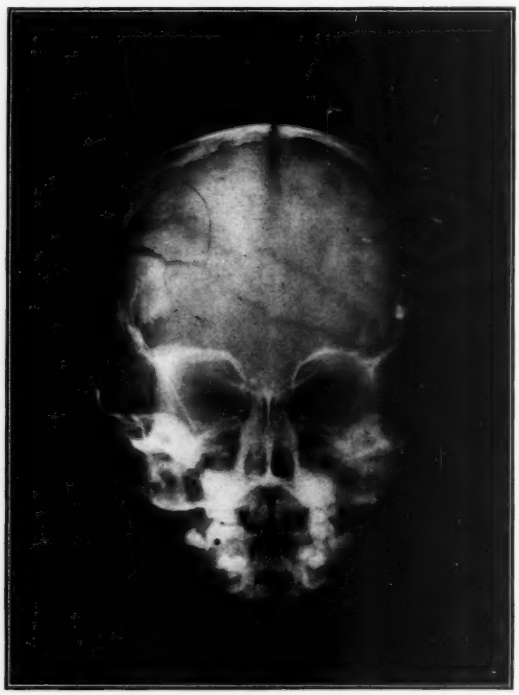

FIGURE III.
Skiagram of Extensive Fracture of the Skull: Anterior View.

FIGURE IV.
Skiagram of Extensive Fracture of the Skull: Lateral View.

The Duodenum.

The whole of the duodenum can usually be observed with a great degree of accuracy and any abnormality of it noted. The first part of the duodenum is a radiological entity called the bulbus or cap. It is here that 95% of duodenal ulcers occur and its close relation to the gall bladder makes it a valuable pointer in pathological conditions of this organ. The normal cap is regular and freely mobile and the regular filling of the cap on any one occasion during the repeated screenings of the patient is sufficient to exclude organic lesion, since all ulcers of the duodenum produce some deformity. Deformity of the cap is seen in adhesions, veils of the omentum and in ulceration, but it is usually possible to distinguish these three. The main deformity seen is due to the spasm of the muscle fibres and when this spasm is relaxed by atropine, the crater of an ulcer can usually be demonstrated. Dilatation of the duodenum may occur proximal to an organic lesion of the first or second part of the organ or it may be due to a partial intermittent obstruction from extra-gastric tumours or adhesions. A more common cause than is generally recognized for dilatation of the duodenum is the duodenal ileus produced by pressure of the superior mesenteric artery on the third part of the duodenum as it crosses the middle line in cases of right-sided visceroptosis. These abnormal conditions produce duodenal stasis as well and one may also observe retro-peristalsis or "writhing duodenum." One may rarely see a diverticulum of the duodenum which is then described with appropriate comment.

Motility.—The evacuation time of stomach and duodenum, indicating gastric motility is noted and reported. The normal stomach empties in from four to six hours from the ingestion of the motor meal and any variation of this time is an indirect sign of a pathological condition. One expects hypertonic stomachs with hyperperistalsis to empty rapidly and this is usually the rule except in some cases of ulceration of the pyloro-duodenal region which have not yet gone on to the stage of dilatation and hypotonia. In these cases one sometimes sees very rapid emptying at first, followed by six-hour residue in small quantities in the stomach and duodenum. Hypermotility is seen in the same conditions which produce hyperperistalsis and hypertonia, namely, duodenal ulcer, chronic appendicitis, cholecystitis and so forth. It is observed, however, in its most pronounced degree in extensive carcinoma of the body of the stomach and then the condition known as "leather bottle stomach" is described, with its gaping pylorus and the meal passing so rapidly that it is sometimes impossible to obtain skiagrams. Hypermotility is usually not confined to the stomach, but is general throughout the whole tract, the head of the meal frequently reaching the descending colon in six hours in irritative lesions of any part of the alimentary tract.

Intestines.

Lesions of the jejunum and ileum are rare and if observed are reported on in detail. The ileo-caecal junction is an important landmark owing to its close relation to the appendix. The ileum should be empty in twenty-four hours and any delay or ileal stasis is reported and a cause suggested for it, such as adhesions or bands from an inflamed appendix, kink of the terminal ileum and so forth. The caecum should be observed for position and mobility and the appendix described if it is visualized. In cases in which it would appear to be necessary, examination after forty-eight or seventy-two hours will show the presence or otherwise of obstruction or of caecal stasis or stagnation, often an important sign in pathological conditions of the appendix.

The general appearance of the rest of the colon may be observed at the end of twenty-four hours from the ingestion of the meal. Colitis, spasm, diverticulitis, obstruction or any other abnormality is noted and later confirmed by opaque enema. Early chronic colitis is evidenced by spasm of a part of the colon with narrowing, irregular sacculation and hypermotility of the meal. This goes on to stasis and the formation of multiple diverticula —diverticulitis—due to spasm and irregular contractions shutting off small pockets in which fæces stagnate. An enema is then given and the opaque fluid observed as it flows into the colon, confirming or modifying the appearances seen at the meal examination and filling up any part which has been emptied by the natural action of the bowel.

The Appendix.

More and more attention is being directed to the X-ray examination of the appendix and some authorities state that an operation for chronic appendicitis is not justified unless the diagnosis is confirmed by X-ray examination of the gastro-intestinal tract. Whilst this is perhaps an extreme view, the mass of evidence both direct and indirect that may be obtained by the radiographer, is a valuable aid to correct diagnosis. Most of the indirect evidence has already been described, namely, hypertonia with transient incisuræ of the stomach and hypermotility of the meal with hyperperistalsis. The direct evidence is obtained from the local appearances, ileal stasis, fixation of the ileo-caecal junction, tenderness on direct palpation, caecal stasis and the appearance of the organ itself if demonstrated. Experience inclines one to the opinion that the failure of the appendix to fill is more in favour of a pathological condition than the reverse. When the appendix fills, its position may be described, the presence of concretions noted, its movement on palpation and respiration observed and an opinion may be formed from the whole evidence, direct and indirect, as to the likelihood or otherwise of a pathological condition being present.

Conclusion of the Report.

Under the heading of conclusion the main points of the findings at the examination are reviewed and correlated as to their probable origin from the point of view of the radiographer. The conclusion is not necessarily a diagnosis and must not be

regarded as such, but rather as another link in the chain of evidence which is to lead the practitioner to a correct diagnosis.

Conclusion.

Such is a brief summary of the method and possibilities of opaque meal examinations. It is intended to convey to practitioners what they may expect from such examinations and to help them in the interpretation of radiologists' reports. Finally, I would enter a plea for more effort on the part of practitioners to let the radiographer know the subsequent history of patients and the results of treatment. Such information would be invaluable in contributing to the radiographer's knowledge, adding to his experience and increasing his efficiency.

HOOKWORM DISEASE AND THE GENERAL PRACTITIONER.

By H. R. Pearson, M.B., Ch.M. (Sydney),
Medical Officer in Charge, Number 1 Hookworm Unit, Australian Hookworm Campaign.

Hookworm disease is eminently preventible and the contribution of the general practitioner to this desirable end may be considerable. Hookworm disease in all its stages provides opportunities for careful and consecutive observation.

It would seem that the first authentic case to be reported in Australia was that of a patient who died in what is now the Goodna Hospital for the Insane, Queensland, in 1889[1] suffering from severe anæmia and general dropsy. At the autopsy "thirty or forty" living hookworms (*Anchylostomum duodenali*) were adhering to the duodenum and the upper jejunum. For twenty-five years after that date its presence was frequently noted in coastal Queensland and its potential risks were pointed out by Breinl, Elkington and other writers. The first step in an organized campaign against hookworm disease in Australia was taken in 1917 when on the completion of the survey of the Territory of Papua the International Health Board of the Rockefeller Foundation with the cooperation of the State of Queensland commenced a survey in Queensland. On October, 1919, the Australian Hookworm Campaign began operations upon a budget of £100,000, extending over a period of five years, contributed by the International Health Board, the Commonwealth of Australia and the participating States. By methods of school survey, intensive survey and special investigation the whole of Australia has been surveyed and endemic areas mapped out. On October 1, 1924, the Commonwealth Department of Health took over direction of the work and initiated a three-year programme under the directorship of the Director of the Division of Tropical Hygiene, operating on a reduced budget of £8,000 *per annum*, contributed jointly by the Commonwealth of Australia and the States of Queensland and New South Wales. The three-year programme aims at the permanent control of hookworm disease.

The Australian Hookworm Campaign survey has rendered great and valuable service to Australia and its dependencies. It has made many contributions to our knowledge of endemiological factors, including the influence of rainfall, temperature, altitude, type of soil and factors favourable to the persistence of introduced local foci (as at the Goodna Hospital for the Insane) and also by intelligence tests (Binet-Simon and Porteus) has convincingly demonstrated that as a result of the anæmia and toxæmia produced and directly proportionate thereto mental retardation to the extent of two years has been caused by hookworm amongst many infected children.

Australia is not, even in the few areas where the highest figures have been obtained, a badly infected country, but the disease if uncontrolled would eventually have produced results of serious import, especially in our tropical north. The campaign has enabled us to get it under control in time.

In the direction of practical prevention forces have converged upon two main points. The first objective is the prevention of the ill effects of existing infection by: (a) concentrating attention upon school children because (i.) they are the most easily accessible section of the population, thus giving economic working, (ii.) the ill effects arising from infestation are most manifest and permanently irreparable if infection is acquired and left untreated at this age; (b) intensive methods, that is house to house visitation and collection of fæcal specimens for examination, in areas found by school survey to have high hookworm indices (high infection rates); (c) treatment to a cure, immediately instituted and controlled by repeated fæcal examination. The drug now used is carbon tetrachloride (CCl_4) which is prepared in a high degree of purity. It has an efficiency of 90% to 95% cures. It is administered in the safe dose of 0.12 mil (two minims) per age of year up to seventeen, when the adult dose of two mils (thirty minims) is administered.

The second objective is the prevention of infection. Particular emphasis is placed upon the preventive aspect of the problem. Every individual infested with hookworms is a potential source of disease dissemination. Every infested individual may spread the disease to others by soil pollution. Here the attempt is made to break the vicious circle. From one aspect the Hookworm Campaign is an educational campaign for improved sanitation by attempting to raise the sanitary standards to conform with State regulations. In some Australian States the standard set by regulations is higher than in others. The aim is the prevention of soil pollution and fly contact with fæces. The campaign broadly viewed is, therefore, a campaign against "filth diseases." But it is the general practitioner who alone is able constantly to point the moral of preventive medicine with illustrations and with practical demonstration and to inculcate the principles of domestic hygiene.

The Willis salt floatation method, devised by an Australian graduate, affords to every practitioner a simple, rapid and completely reliable method of securing positive diagnosis in any case of hookworm infestation. All that is needed is a small specimen of bowel motion (one to three grammes)

a small tin container, a saturated solution of common salt, a glass slide (preferably five centimetres by seven and a half centimetres), a microscope and a few minutes in which to complete the examination. The small fæcal mass is placed in the tin and thoroughly mixed with saline solution and is well stirred with a wooden tooth pick. The tin is then filled with saline solution, covered with the clear grease-proof slide and allowed to stand for five to ten minutes. A shorter time will suffice. The glass slide is removed, turned over and examined under a low power of the microscope (half inch objective and number five eye piece). Ova are readily detected floating upon the saline solution upon the top surface of the slide. Any good text book of tropical medicine will give their identificatory detail for one who is not already versed in their recognition.

During routine fæcal examination the ova of other parasites are often encountered. Those that have been met with most commonly, are the ova of *Hymenolepis nana* (dwarf tape worms), *Oxyuris vermicularis*, *Ascaris lumbricoides* and *Trichuris trichiura*. Commonly the ova of *Tyroglyphus longior* and not infrequently the ova of *Oxyuris incognita* and strongyloid larvæ are encountered.

The author of this paper would emphasize the importance of the prevention of infestation by the first four of these parasites, which up to the present have not received the attention they merit. The knowledge of the epidemiology and symptomatology and the best methods of treatment of these infestations is still in an unsatisfactory state. Many vague symptoms are attributed to the presence of "round worms" and "thread worms" in children. It is hoped from a plan now in operation that some definite contribution to knowledge of these infestations may be made. Its success depends upon two factors beyond the control of the Hookworm Campaign. These two factors are the cooperation of the parents of children notified and of the general practitioner in returning the letters of notification as requested with brief notes of the clinical findings if any and the form of treatment adopted. The children will be re-examined again in the course of the Hookworm Unit's activities and from the records kept information may be extracted showing the number cured under the several forms of treatment and the various drugs employed. From the clinical notes contributed valuable information bearing on the symptomatology may be gained. An advance in knowledge of the epidemiology of intestinal helminthic parasitism is expected.

Whilst the Hookworm Unit of which the writer is in charge, was working in the Northern Rivers District of New South Wales this scheme received the approval of the New South Wales Branch of the British Medical Association. Arrangements were made by the Director of the Campaign whereby the notes and suggestions returned by practitioners will be forwarded to and utilized at the Commonwealth Health Laboratory at Lismore. This Laboratory is also available to carry out at all times examinations of fæcal specimens for hookworm or other intestinal parasites. The termination of the present survey will not, therefore, interfere with the valuable assistance which practitioners can give in the matter and it is anticipated that the Unit will effect a resurvey in the course of 1926. A similar procedure will be followed in North Queensland and it is hoped confidently that the active and practical cooperation of all practitioners in hookworm infested areas will ultimately be obtained.

Reference.

(1) J. B. Hogg: *Australasian Medical Gazette*, February, 1889, page 133.

Reports of Cases.

UNUNITED FRACTURE OF NECK OF FEMUR. TREATED BY AUTOGENOUS BONE GRAFT.[1]

By A. V. Meehan, M.B. (Sydney), F.R.C.S. (Edinburgh), *Honorary Orthopædic Surgeon, Brisbane General Hospital; Honorary Orthopædic Surgeon, Hospital for Sick Children; Orthopædic Surgeon, Repatriation General Hospital, Brisbane.*

History of Injury.

T.M., aged thirty-six years, a dairy farmer, was standing on the back of a cart in April, 1922, when the horse bolted and he was thrown heavily backward to the ground.

He thinks that he landed on his feet; he immediately found that he could not move his right leg and had great pain in the right hip.

He was conveyed to a country hospital and a diagnosis of sprained hip was made. After rest in bed for four weeks he went home with instructions to work the soreness out of his hip by using it as much as possible.

These instructions were fully carried out. The patient walked about the house on crutches and also walked between parallel bars, putting a little weight on the right leg. This exercise always caused great pain in the right hip, but he was not discouraged and after a few weeks he actually mounted a horse and went for short rides. His pain was so great that he soon had to desist from this exercise.

In August, 1922, he sought further advice and an X-ray examination revealed an ununited fracture of the neck of the right femur.

He was admitted to another country hospital and a weight extension was applied to the leg for about twelve weeks. A second X-ray examination was then carried out and revealed no signs of union.

In November, 1922, he first came under my notice and the following is an outline of his condition. He was a spare individual subject to severe attacks of asthma, one of which was causing much wheezing and distress.

He walked on crutches and put no weight on his right leg. Movement at the hip joint was restricted in all directions and was painful. The right leg was kept in eversion and could not be voluntarily inverted. The right lower limb was 3.75 centimetres (one and a half inches) shorter than the left lower limb.

He was admitted to hospital and after a week's palliative treatment for his asthma he was submitted to operation on November 28, 1922.

Operation.

The hip-joint was approached through an anterior incision and the site of fracture was exposed; no evidence of callus formation was present. The fractured ends were

[1] Read at a meeting of the Queensland Branch of the British Medical Association on February 5, 1925.

freshened, but the small proximal fragment showed very little tendency to bleed, even when the fractured end was freely chiselled away.

Through a second incision on the outer side of the great trochanter a massive bone graft removed from the tibia was passed through both fragments after drilling and hammered firmly home.

The limb was then encased in plaster of Paris, the cast extending from the axillæ to the toes.

After-Treatment.

The patient suffered greatly from asthma while in the plaster cast and at times it was thought that it might be necessary to remove the cast in order to allow him to sit up. This was avoided, however, for six weeks, at the end of which time a walking caliper was fitted, so that practically all the patient's weight was taken on the *tuber ischii*.

Periodical X-ray examinations revealed a gradual increase in bony union, although the graft appeared to bend a little.

The last picture taken (see Figure iv.) shows complete and solid bony union and the shape of the neck of the femur has been reconstructed and forms an excellent example of the fulfilment of Wolff's Law.

The patient is now able to walk well and do his work and has excellent movement in the hip-joint, except that only about 20° of abduction are present.

LESIONS OF BONE.

By A. T. Nisbet, M.B., Ch.M., D.P.H.,

Honorary Radiologist, Mater Misericordiæ Public Hospital, Hospital for Sick Children, Brisbane.

The following notes are published to illustrate the advantages of reducing the photographic prints of skiagraphic negatives instead of making direct contact prints. Part of these advantages, however, are lost on reproduction in half-tones, since the same reduction is usually effected in this process without loss of distinctness or detail.

Typhoidal Abscess of the Fibula.

G.T., a male, aged ten years, had had enteric fever thirteen months before he was brought to me. His parents had noticed that his right leg was becoming "crooked."

On X-ray examination a typhoidal abscess was discovered causing absorption of the lower end of the fibula. An exostosis of the tibia was also seen. There was further some old chronic periostitis which had led to an increase of the inner aspect of the tibia.

An operation was performed by Dr. Dixon, who discovered a bony growth arising from the tibia. The growth was firmly fixed to the fibula. At the situation where the exostosis was attached, the growth consisted of a thin shell. The specimen was examined pathologically and was found to be composed of inflammation, hæmorrhage and atrophy.

Fracture of Both Forearms.

J.L., a male, aged ten years, fell from a tree and fractured both his forearms.

The skiagrams revealed green-stick fractures of the ulnæ in their lower third. The fragments were in good position. There were also fractures of the radii nineteen millimetres (three quarters of an inch) above the epiphyses. The lower fragments were displaced with the epiphyses dorsally and radially. Exactly the same disability was seen in each forearm.

Extensive Fracture of the Skull.

V.B., a male, aged seven years, was admitted to hospital on November 23, 1925. He had fallen from a beam at school. When examined he was unconscious. There was a small punctured wound over the right eyebrow which was bleeding freely. The pupils were equal and reacted to light. Crepitus was obtained over the right frontal bone, extending about five centimetres to the side of the mid-line. No contusions were detected on the scalp. The child vomited bright red blood.

The skiagram revealed a very long fracture of the skull, extending along the right half of the skull to the temporal and ethmoidal regions and toward the vertex.

Dr. Tucker operated. He removed a piece of depressed bone over the supra-orbital ridge. The wound was drained. The patient improved rapidly and was discharged from hospital on November 21, 1924, that is four weeks after admission.

Reviews.

JOSEPH LISTER.

The third edition of "Lord Lister," by Sir Rickman John Godlee, has just come to hand.[1] Three editions of this work in the space of seven years are a sufficient guarantee that Sir Rickman has done his work well and that the book occupies an important place in the history of medicine. The third edition contains a new chapter—the final one—called "Postscript, 1924." This chapter contains problems which are of interest to the present day surgeon. In the late war, especially in the earlier stages of hostilities, the surgical treatment of gun-shot wounds, compound fractures *et cetera* was found to be very unsatisfactory and this caused the surgeons to seek out many inventions. These are discussed in "Postscript, 1924." In the preface to the first edition the author tells us: "In writing the life of Lord Lister I suffer from certain disadvantages which are counterbalanced—perhaps outweighted—by special advantages." The biographer was a nephew of Lord Lister and he fears that the picture he has painted of his illustrious kinsman will be out of focus when scrutinized by those who are not bound to the subject by ties of relationship. His fears are, however, chimerical; the picture viewed from whatever angle shows no evidence of either astigmatism or macropsia. Sir Rickman's special advantages for authorship are cogently stated: "My qualifications for recording Lister's life are of the same kind as the disqualifications. I was just passing out of boyhood when he made his great discovery and was old enough to have some faint inkling of its meaning. During my studentship I was able to compare the old system of surgery then in full swing at University College Hospital with Lister's practice in Edinburgh. Few are left who had so good an opportunity of making this comparison, or of watching the whole course of the modern revolution in surgery, or of noting the heresies or schisms as they crept in." The book is divided into two parts. The first part is clear and free from technicalities so that "he who runs may read"; the second, consisting as it does of five appendices, is technical and intended chiefly if not solely for medical and scientific readers. Sir Rickman Godlee refers to Lister as a genius. A genius has been defined as "ten *per centum* inspiration and ninety *per centum* perspiration." If this definition be correct, then Lister was a genius. The biographer tells us in a delightful way the life story of Joseph Lister. Born on April 5, 1827, at Upton House, Upton, in Essex, Joseph was the fourth child and second son of Joseph Jackson Lister and Isabella Harris, his wife. From his parents he inherited mental wealth and the scientific mind. He was a quaker born and lived in a Quaker atmosphere and all that that means till he had finished his curriculum. He early chose the surgical side of the healing art as his life's work. "When quite a child he announced that when he grew up he would be a surgeon. It was entirely a spontaneous wish." After nine years as a student at University College he graduated bachelor of arts and bachelor of medicine at London University; and became a fellow of the Royal College of Surgeons of England in the year 1852. Entering on his medical course in 1848, the year after the discovery

[1] "Lord Lister," by Sir Rickman John Godlee, Bt., K.C.V.O., M.S., F.R.C.S.; Third Edition Revised; 1924. Oxford: The Clarendon Press. Royal 8vo., pp. xvi. + 685.

of chloroform as a general anæsthetic, Lister saw much of the pre-anæsthetic surgery. The spirit of original research was born with him and remained a dominant passion throughout his long life. After a term as resident medical officer at his old hospital he went north intending to spend a month in Edinburgh; he remained in Scotland twenty-four years. It was during these years that his epoch-making work was begun and elaborated. He returned to England as professor of clinical surgery at King's College, London, in 1877, and retained the chair till 1892. We are tempted to say here something about the work of the great Pasteur and the profound influence it had on Lister and his work, but space or the want of it prevents us from doing more than just mentioning his name. The question has been often asked: "Was Lister a dexterous operator?" Sir Rickman Godlee answers that question: "I helped Lister in his private practice for many years and have no hesitation in saying that he was a good operator." "But the question has often been answered in the negative; chiefly, however, by two classes of surgeons: those of the old school who loved the slap-dash methods of his predecessors and the younger men who only saw him in his later years, when the lessons he had taught had been followed by complications of technique which he had never adopted and deplored as unnecessary."

Lister's character may be implied by his address at the graduation ceremony in Edinburgh in 1876. "If we had nothing but pecuniary rewards and worldly honours to look to, our profession would not be one to be desired. But in its practice you will find it to be attended with peculiar privileges second to none in intense interest and pure pleasures. It is our proud office to tend the fleshly tabernacle of the immortal spirit, and our path, if rightly followed, will be guided by unfettered truth and love unfeigned. In the pursuit of this noble and holy calling I wish you all God-speed." Lister had the good fortune to live long enough to see his doctrines verified and his methods revolutionize the practice of surgery. Full of years and full of honours he passed away on February 10, 1912. We made him a lord; had he belonged to another profession he would probably have been, ere now, apotheosized for his great services to suffering humanity. Sir Rickman John Godlee has written a great biography of a great man. The book is well produced and copiously illustrated. Many of the illustrations are from photographs.

DISEASES OF THE BREAST.

THE discovery of his own ignorance on the subject is given by the author in his foreword as the main reason for his determination to write this book "On the Breast," a work which has entailed diligent research both in the literature and in the actual cases which have been dealt with in certain hospitals.[1] He also states that he was encouraged to do so as he found that no book on the subject had been published in England for twenty years.

Chapters II., III., IV. and XVII. prove the amount of investigations made by the author even into old literature on the subject. They are extremely interesting but savour perhaps too much of the enthusiasm of the collector than of the surgeon. The other chapters, however, are of the most practical nature. Of these numbers XIV. and XVI. give the present views on the difficult subjects which he describes under the following headings: Chronic interstitial mastitis and fibro-epithelial tumours. They clear the atmosphere so that one can see the pathology of the conditions with a vision unobscured by the dust sometimes raised by the examination of single microscopical sections.

Chronic interstitial mastitis, otherwise known as cystic disease, cyst adenoma, involution cyst, chronic cystic mastitis, chronic lobular mastitis, Brodie's disease and so forth is depicted as a perversion of normal involution in which abnormal changes chiefly of a hypertrophic nature occur in the epithelium at the same time as changes in the connective tissue either of an atrophic or hypertorphic nature. These changes deform the normal breast tissue in various ways and cysts can form as the result of blocking either by plugs or by contraction of fibrous tissue. At times or in certain places ordinary inflammatory leucocytic infiltration may supervene, still more distorting the picture. There is nothing, however, in these changes which may prevent carcinoma commencing and the fact that the structures are no longer normal renders them more prone to this change.

Fibro-epithelial tumours, including pure adenoma, fibro-adenoma and cyst adenoma are held to be growth in certain acini, the stimulant of which is at present unknown, and varying degrees of overgrowth of the supporting fibrous structures. The capsule from which the tumour can be shelled out, is formed by compression of neighbouring breast tissue. Variations of these two processes can cause the different structure observed in these tumours. The chapter on X-ray treatment is written by G. Harrison Orton, Radiologist to Saint Mary's Hospital, who commences by stating definitely that X-ray treatment must not be recommended in place of operation.

The whole book from the clinical point of view is written around actual case notes which are quoted. This admirable method leaves the reader with the comfortable impression that he has formed his own opinions from them, whereas, may be, he has really been gently led up to them.

[1] "On the Breast," by Duncan C. L. Fitzwilliams, C.M.G., M.D., Ch.M., F.R.C.S. (Edin. and Eng.); 1924. London: William Heinemann (Medical Books) Limited; Royal 8vo., pp. 456 + x., with 166 illustrations and two plates. Price: 30s. net.

ACUTE POLIO-MYELITIS.

THE management of an epidemic of infantile paralysis presents several difficult problems and to those who may be called upon to undertake it in Australia, a study of "Infantile Paralysis in Vermont," published as a memorial to Dr. Charles Caverly, may be recommended.[1] Charles Caverly who died in 1918, had for twenty-four years been prominent in investigating this disease and the first two hundred pages of the present volume (the chapters are not numbered) consist of a series of papers written by him between 1894 and 1917 and now reprinted.

They are rather of interest to the epidemiologist than of value to the clinician. Annual reports from the year 1910 onwards are given in full and, while Dr. Caverly makes no attempt to explain the statistical facts, they have been charted and tabulated with true American enthusiasm. Points that are well demonstrated, are the summer and early autumn epidemicity, the peculiar local immunity and the tendency of the disease to follow the arteries of human intercourse. His idea that the disease was essentially a rural one was shattered by the terrible New York epidemic of 1916.

It is interesting to note the more accurate recognition of the disease with each succeeding year. In the earlier tables we note that the patients presented such easily noted paralysis as those of whole limbs or of the eyes or pharynx. In the later tables, however, recognition of damage not only to unimportant muscles, but actually to parts of muscles is fully recorded. This became possible by the employment of elaborate means of "muscle testing," the application of which is fully described in a later section. Dr. Caverly was the first to observe the frequency of abortive cases and no doubt it was his painstaking "muscle testing" that brought these cases under his notice.

The second section of the book (pages 201-301) is mainly the work of Dr. Robert Lovett and is concerned with the medical treatment and after care of patients. All of this is finely done. Most medical practitioners think of the disease as progressing in three stages; a stage of pain and tenderness, needing rest; one of slow recovery or repair, needing exercise and re-education; and finally the stage of residual paralysis, often needing surgical treat-

[1] "Infantile Paralysis in Vermont, 1894-1922": A Memo to Charles S. Caverly, M.D.; 1924. Vermont: State Dep ment of Public Health. Royal 8vo., pp. 375.

ment. The author, while accepting these main divisions, connects and correlates them in such a masterly and lucid way that the student can be advised to read carefully the whole of this portion of the book. Dr. Lovett extends the second stage up to two years, that is, he persists with re-education up till that time and has demonstrated improvement even later. He insists on exercise at the right moment, stating that much of the disability should be called weakness, rather than paralysis. He insists also on determining the right muscles to be exercised and even the right portions of large muscles such as the deltoid. He distinguishes carefully between exercise and fatigue and with the aid of "muscle testing" apparatus has been able to obtain better results than previously, when the capabilities of the patients were overtaxed by too violent exercise under a system of guesswork. He has hardly a good word to say for the use of massage or electricity.

Since 1914 the treatment of infantile paralysis in Vermont has been under State control. Notification is compulsory and all those reported as suffering from the disease have been treated by Dr. Lovett and his co-workers. This procedure no doubt has its advantages and disadvantages, but one result has been the formation of an elaborate system of after care, including hospital treatment, home visiting and medical and surgical treatment, manufacture and fitting of splints, braces and so forth and the teaching of exercises. The statistics given indicate that this has been of considerable value.

A few pages are devoted to specific therapy and to the use of hypertonic solutions, but the results, as elsewhere, have been meagre and inconclusive.

RENAL DISEASE.

Professor Hugh McLean's little monograph on renal disease has gone into a well-deserved second edition.[1] The alterations are few and the book retains its concise nature, its clearness and its inclusive character which has made it ideal for both students and practitioners.

The admirable first chapter on the chief functions of the kidney is left unaltered. Then follows "The Kidney in Disease," enlarged by some paragraphs on histological observations and four excellent coloured plates of microscopical sections. This is succeeded by three chapters dealing with methods of studying the work of the kidney and after a lucid consideration of albuminuria, the modern renal tests are described. This is done so simply that any physician with a little practice could do any of them.

Professor McLean does not regard the phenolsulphonephthalein test highly. In this he differs from many workers. He retains the diastase test which even he has to admit is unreliable. He has still no suggestion to offer for an even earlier test before the damage is extensive and while there is yet hope of arrest. This is needed, especially in the chronic interstitial nephritis of young people which in its early stage is indistinguishable from albuminuria of adolescence.

More might be made of the distinction between high blood pressure with renal disease and that not associated with renal disease, the essential hypertension of some writers.

The chapter on the state of the kidney in certain surgical conditions is enlarged and excellent. Full, clear and dogmatic, it should be read by every surgeon who would remove a prostate or cut a stricture.

Easily the best chapter in the book is that on the dietetic treatment of nephritis. It is simple, reasoned and stimulating. It goes back to von Noorden and forward to Epstein's treatment of hydræmic nephritis. If this chapter were read and applied, at least many nephritic patients would be much happier if not better on a moderate general diet, released from the sloppy, restricted and cloying milk and semi-milk diets to which they are still so often condemned.

[1] "Modern Methods in the Diagnosis and Treatment of Renal Disease," by Hugh McLean, M.D., D.Sc.; Second Edition, Revised and Enlarged; 1924. London: Constable and Company, Limited. Sydney: Angus and Robertson, Limited. Demy 8vo., pp. 110, with four coloured plates.

INFECTIOUS DISEASES.

General practitioners will receive valuable help from a little book, "The Diagnosis and Treatment of the Infectious Diseases," by Dr. Frederic Thomson, in that it deals with many little difficulties which they encounter in their daily work.[1] Dr. Thomson is at his best in the concise and accurate description, not only of the common signs and symptoms, but of variations from the usual picture of a disease. His descriptions of Koplik's spots, the aberrant forms of the scarlet fever rash, the symptoms of enteric fever and the few words on rubella could hardly be improved upon in so small a compass. A close study of this part of the book will obviate the necessity for reading most of the part devoted to differential diagnosis which, however, is well handled.

The other portions of the book dealing with treatment do not reach the same high standard. The book is too small for the subject and the difficulty becomes greater when the author does not preserve a proper proportion. For instance, he cannot afford to take up nine pages with tracheotomy which is a comparatively unimportant part of the treatment of diphtheria.

The best chapters in the volume are those on cerebrospinal meningitis and chickenpox which are admirably done. Those on smallpox and enteric fever also are excellent. Dr. Thomson wisely lays stress on the difficulty and importance of the feeding of infants suffering from whooping cough. This aspect is too often neglected.

As a whole the book is well worth study, but it will be most useful as a supplement to a larger work.

VENEREAL DISEASE.

In "Modern Diagnosis and Treatment of Syphilis, Chancroid and Gonorrhœa," Lieutenant-Colonel Harrison has added another very useful work on the all-important subject of venereal disease.[2] The first part of the book is devoted to an account of the various biochemical methods adopted for the diagnosis of syphilis. The importance of early diagnosis by the microscope with special reference to the dark ground method, is emphasized. A short account is given of the clinical signs of syphilis which influence diagnosis.

The chapter on the characters of the principal lesions found in the various regions of the body and their differential diagnosis from non-syphilitic affections of those regions should prove very useful to those interested in the subject of venereal diseases.

Congenital syphilis and its influence on the individual are described. The prevention of syphilis is dealt with in a short chapter. The treatment of syphilis is fully described and several courses of treatment for syphilis in various stages are suggested. A short chapter is devoted to chancroid and its treatment. Gonorrhœa in males occupies the greater part of the book dealing with gonorrhœa. A more detailed treatment of gonorrhœa in women and children would have been welcomed.

The monograph contains much useful information and should prove of great service to those interested in the question of venereal diseases.

[1] "The Diagnosis and Treatment of the Infectious Diseases: A Manual for Practitioners," by Frederic H. Thomson, M.B., C.M. (Aberdeen), D.P.H.; 1924. London: H. K. Lewis and Company, Limited. Crown 8vo., pp. viii. + 208, with illustrations. Price: 7s. 6d. net.

[2] "Modern Diagnosis and Treatment of Syphilis, Chancroid and Gonorrhœa," by L. W. Harrison, D.S.O., M.B., Ch.B., M.R.C.P.E., Brevet-Colonel R.A.M.C. and K.H.P. (Ret.); Modern Medical Monographs, Edited by Hugh McLean, M.D., D.Sc.; 1924. London: Constable and Company, Limited. Sydney: Angus and Robertson, Limited. Demy 8vo., pp. 167, with illustrations.

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Cancer.

WITHIN the past few months several significant events have taken place in connexion with the study of cancer. The Cancer Research Committee of the University of Sydney, after sufficient preliminary organization and planning, is gathering its forces and is about to start on its career. This is undoubtedly the largest and most serious coordinated effort that has been made in Australia to lift the veil that obscures the understanding of the ætiology of malignant diseases. In August, 1924, the Senate made an appeal for £10,000 to start the campaign and indicated in the general terms the manner in which this sum would be spent. Various small amounts have been collected and recently the Commonwealth Government consented to hand over £2,500 out of the £5,000 set aside for research to the Cancer Research Committee. The promoters of the undertaking are sanguine in regard to the prospect of a liberal endowment; the omens are certainly favourable.

Simultaneously progress appears to have been made in Great Britain and other European countries. Cancer committees are being organized in many places and an endeavour to interest the public in the problems at issue is preceding the initiation of a well-planned scientific assault. Moreover, a survey of the position has been taken and it is now generally recognized that of the many possible methods of attack some have been exploited and have been found to offer but small prospect of eventual success; some have been partially explored and the results are still undetermined; others have yet to be utilized. Of the first class the study of the histology of the several varieties of malignant neoplasms has revealed a mass of very important information, but by itself will not lead to a full disclosure of the nature of these diseases. The inoculation method of mouse tumours has been worked to death. Clinical observation and autopsy findings seem to be insufficient by themselves to lead to the goal. In the second class there is the highly ingenious tissue culture method. In our issue last week Dr. Mackerras has given a fascinating and instructive account of the work of Jacques Loeb and those who have adopted and adapted his technique. Much more has to be done in this direction before the value of the method from the point of view of the ætiology of malignant disease can be ascertained. Important facts have already been elicited; others may be anticipated. But there is at present no indication that the solution of the problem at issue will be discovered in this manner. The statistical method has been applied in a variety of ways, but has not been exhausted. Dr. T. Cherry has shown recently that this method is by no means sterile and that some highly significant information can be obtained from an intelligent and unbiassed consideration of figures. The third class includes the chemical and physical methods of investigation. It is true that some excellent work of this nature has been carried out, but this work cannot be regarded as anything more than orientation. It is difficult to devise a starting point for either a purely chemical or a purely physical attack or a combination of the two. Freund's researches were based on a careful analysis of the constituents of blood in persons suffering from cancer. This may yet prove fruitful. Goldman's conception of "vital staining" by which is meant a study of the affinity of tissues and tissue cells for particular chemical bodies, needs further elaboration and application. The physico-chemical consideration of nuclear constituents and of the movement and arrangement of atomic electrons opens up another path for exploration. Professor F. P. Sandes has given some ideas on this subject, which seem to offer a promising field of research. In the course of a week or two a preliminary communication by Dr. W. Moppatt will be published in this journal on what appears to be an important discovery by him of the selective action of X- and light rays of varying wave lengths on living tissues and cells. There are several other recently elucidated facts which point to biochemistry and bio-physics as the sciences which will reveal the nature of the malignant diseases. Finan-

cial assistance, men with scientific minds and technical training and patience are the three commodities needed for success. The medical profession can provide the second and third. It looks to the public to supply the first.

PROPRIETARY REMEDIES.

THE world usually takes a man at his own valuation. It is prepared to accept without reason and without discrimination the laudatory commendation of nostrums issued by their proprietors. It is little less than astounding that quack remedies enjoy a very extensive and ready sale on the most impudent of claims in advertisements. Unfortunately the lay press lends its aid to the nostrum vendor by accepting his advertisements without careful inquiry and searching control. Exposures of obvious frauds do not appear to damage the traffic to a noticeable extent. There have been countless prosecutions and convictions and yet the charlatan imposes his worthless goods on a gullible public. Proprietary remedies may be good, bad or indifferent. We use the term in its popular and not in its strict sense to indicate a medicament offered for sale as a means of treatment of specified diseases. The good remedies are those which are composed of pure ingredients of proven pharmacological action. These preparations may be better than any pharmacopœial drugs or combinations of drugs on account of some skilful or happy pharmaceutical device or on account of the employment of some patented or secret method of manufacture of one or more ingredients. The bad remedies are those which are composed of more or less harmful components, often of indifferent quality, those which are vaunted as remedies for ailments that cannot be cured by their means and those which are offered for sale at profits out of all proportion to their intrinsic value. The indifferent remedies are those for which extravagant claims are not made, which are compounded of materials of moderately good quality and which have little or no real therapeutic action.

Secret remedies have no justification for their production. Usually their constituents are quite ordinary drugs, compounded according to some well-known formula. They are sold with a great flourish as powerful remedies for affections that cannot be cured save by individual care and by the application of a sound knowledge of pathology. Many are dangerous preparations to give into the hands of patients for self medication. The published "unsolicited testimonials" are often bought and are quite untrustworthy. If they are not fraudulent, they are worthless on account of the incompetence of untrained persons to evaluate the therapeutic action of any preparation.

The governments of today claim to be the custodians of the welfare of the people. The public health is supposed to be safeguarded by the wise administration of special legislative measures. Yet no protection is offered to the public against the dangerous traffic of the patent medicine vendor. The newspapers accept payment for advertisements of worthless and harmful preparations, while the duty stamp affixed to the labels on these preparations in Great Britain is evidence of the indifference of the authorities in regard to the safety of the people. *The British Medical Journal* performed yeoman service by publishing information concerning secret remedies and proprietary preparations and in exposing some of the nefarious methods of the patent medicine proprietor. The American Medical Association has carried the inquiry even further. On the continent of Europe before the war a stern campaign was conducted against the more fraudulent of these charlatans. But the public takes no heed of what the medical profession can teach it concerning these preparations and continues to purchase them.

We have endeavoured for several years to guide the medical practitioner in Australia in regard to the value of certain proprietary remedies. The object of the analytical department of THE MEDICAL JOURNAL OF AUSTRALIA is to distinguish between the good and the bad and indifferent proprietary remedies. Money is not being wasted on investigations of and reports on remedies known to be fraudulent and dangerous. Proprietors of medical preparations who wish to advertise their goods in this journal, are required to subject their processes to inspection by competent pharmacologists and if they refuse or if the report after inspection of the

manufacture and analyses is unfavourable, the advertisement is refused. Under certain circumstances advertisements of proprietary preparations manufactured outside Australia are accepted, if the advertisements of the same preparations have been accepted by *The British Medical Journal*. Our readers can assist in rendering this function of the journal much more valuable by refraining from prescribing preparations that are not advertised in the journal and by applying to us for information concerning these preparations. The machinery of the analytical department can be extended with advantage.

Current Comment.

THE INFLUENCE OF MATERNAL HORMONES ON THE FŒTUS.

A GREAT deal has been written on the physiology and pathology of the glands of internal secretion, but very little accurate knowledge has been collected. The thyreoid glands, the adrenal bodies, the pituitary and pineal glands, the thymus, the sex glands and divers other glandular structures in the body have been investigated and various attempts have been made to determine their exact position in the economy of the human body. Unfortunately several of the issues involved have been clouded by untenable hypotheses and by deductions drawn as a consideration of the apparent effect of modes of treatment on certain pathological processes. The further accumulation of knowledge concerning these elusive tissues must continue to be based on chemical and histological evidence. It remains somewhat uncertain whether the chemical substances extracted from these glands are identical with the hormones or stimulus-producing substances described by Starling or whether they are complex mixtures containing bodies associated with the ferment-like hormones. It is also extremely difficult to ascertain the mechanism underlying the reciprocal arrangement existing between these glands. That such a balance exists cannot be questioned, but it is equally certain that gross lesions of each of the glands of internal secretion are characterized by peculiar signs and symptoms which cannot be removed by vicarious hyperfunction of other glands. There are many possible points of attack, some of which have been used, while others are still unexplored. Recently some attempts have been made to gain information on this subject by directing attention to the influence of the secretory activity of the glands of the mother on the fœtus *in utero* and of the fœtus *in utero* on the mother. The work of Sellheim stands out prominently in this regard.

Professor A. Seitz has published a preliminary note on his researches and anticipates his conclusions, pending the appearance of his detailed article.[1] He holds that there is considerable evidence to show that the glands of internal secretion are functionally active in the fœtus during the second half of the intra-uterine life. He admits that these internal secretions undergo great variations, but he is inclined to accept the findings of Lüttge and von Mertz that certain maternal changes during pregnancy are traceable to the action of these bodies. He has more important information to give concerning the relations of the maternal glands of internal secretion on the developing fœtus. He deprived male and female rabbits of the whole or of part of the thyreoid and of the adrenal glands. The progeny of these animals were then carefully examined. The young of rabbits deprived of their thyreoid glands were found to have a distinct hypertrophy of the pituitary gland. This was manifested by an increase in the weight of the gland and in microscopical changes in the cellular elements. The young of animals deprived of their suprarenal capsules were affected by an enlargement of the thymus and of the follicles of the spleen. While this effect on the young of animals with partial or complete absence of one or other of these glands was not always present, it was sufficiently frequent and extensive to leave no doubt as to its significance. Professor Seitz calls particular attention to the fact that previous investigators have failed to discover a definite effect on the fœtus after the removal of endocrine organs of both parents because they have sought the changes only in the corresponding organs. He has found that it is the allied glands of internal secretion which are affected. He is not yet in a position to determine whether these fœtal changes are permanent, because it has been necessary to kill the young rabbits during the first or second month of life. It would thus seem that the deficiency of certain hormones in the maternal organism calls forth changes in associated tissues in the fœtus of a defined nature. While it is necessary to adopt a somewhat reserved attitude toward this work pending the publication of fuller details, the method of experimentation adopted seems to be very promising and capable of considerable extension. If the finding of Professor Seitz can be confirmed, an attempt should be made to mate animals with hypertrophy of the same glands, in order to ascertain the effect of an excess of the hormones concerned.

A HUMAN MILK SUPPLY.

THE problem of the infant mortality cannot be satisfactorily solved until the doctrine of Budin that practically every mother can and should nurse her own baby has been accepted throughout the whole community. The rare exceptions are when the mother dies at or soon after child-birth, when the mother has an acute infective process which may be conveyed to her infant, when she is in the advanced stages of an exhausting disease and when there is some pathological process affecting

[1] *Klinische Wochenschrift*, December 16, 1924.

her breasts. Given a woman in apparently good health, with normal mammary glands, the secretion can be assisted by physiological means to enable her to suckle her infant successfully. The statement that the mother's milk does not agree with the baby is an indictment of mismanagement. It is evident, however, that failure or refusal to suckle is common and depends on many social, economical and imaginary factors. The alternatives are feeding by a foster mother or artificial feeding. With the second we are not concerned for the moment. In regard to the first expedient it may be said that, while all babies thrive better on human milk than on any substitute, this is a more imperative demand for premature infants and for infants suffering from certain forms of digestive disturbances. Formerly it was the fashion for those who could afford the luxury, to employ wet nurses in these circumstances. This method of solving the difficulty has become less frequent partly because of the discovery that syphilis was too often conveyed in this way and partly because with the entry of women into commercial life, the supply of wet nurses has become restricted. The importance of foster mother feeding is great, provided that adequate precautions are taken to prevent the spread of disease, but its costliness precludes it from becoming a material factor in the reduction of infantile mortality.

Ten years ago the Detroit Bureau of Wet Nurses started a movement to commercialize the production and distribution of mothers' milk. An attempt was made to induce healthy mothers with a good mammary secretion to express their milk into sterile containers, to cool the milk on ice and to deliver it in this condition at the bureau. Dr. B. Raymond Hoobler publishes a very interesting account of the success achieved during a period of eight years.[1] He points out that the mothers are secured in response to advertisement and as a result of personal reference. Each woman is carefully examined. She must be healthy; her serum may not yield a reaction to the Wasserman test and she must be free from all suspicion of tuberculosis. She must have clean personal habits and live in a clean home. The visiting nurse investigates these matters. She must nurse her own baby for eight months. She is required to express her milk under special precautions twice each day and she must be in a position to deliver at least 0.45 litre (sixteen fluid ounces) each day. For this service the bureau pays the woman ten cents per ounce in addition to tram fares for the delivery of the milk. This means that the woman makes at least six shillings and eight pence a day while she is supplying the bureau. Many women earned much more than the minimum.

Dr. Hoobler makes a mistake in giving the total supplies in ounces. A milk supply must be expressed in litres or gallons. The total amount of milk supplied in eight years was 2,589 gallons or 11,744 litres. This yields an average yearly supply of 323 gallons or 1,468 litres. The maximum in any one year was 2,324 litres. The cost of production has been reduced from twenty-one cents to fifteen cents per ounce during the eight years. The milk is sold to well-to-do persons at thirty cents per ounce, which would mean that an infant taking eight feeds a day of about sixty cubic centimetres each, would require twelve shillings' worth of milk. This price is undoubtedly out of the reach of the average person. The less affluent pay sums varying from twenty-five cents to ten cents per ounce, while institutions pay eight cents. The unsold milk is distributed free of cost to poor persons.

That this arrangement has persisted for eight years and that at the end of that time approximately four litres of milk are available for distribution each day must be regarded as evidence of the practicability of the scheme worked on a small scale. The figures given reveal, however, that it is not a commercially sound scheme. With a substantial State subsidy or charitable endowment this method of combating one aspect of infantile mortality could be developed and rendered of considerable importance.

[1] *The Journal of the American Medical Association*, January 17, 1925.

LEISURE FOR WORKERS.

THE saying that "all work and no play makes Jack a dull boy" was never so true as at the present time when the exigencies of modern life make such a demand on the physical and mental energy of the individual. It is true of all members of society, be they professional men, laboratory assistants, factory hands or manual labourers. It is with the individual employed in factories and other industrial undertakings that the medical industrial hygienist is largely concerned. His duty does not end when he has determined a man's fitness for his work, when he has investigated the hazards to which the worker is exposed, and when he has treated those who meet with accidents in the course of their daily work or are affected by the particular processes of the industry. The question of the provision of adequate leisure hours, of annual holiday leave and of the most suitable way in which these may be spent, are at any rate his concern. While it is not to be supposed that the industrial employee should be spoon-fed in this regard, the medical practitioner must be prepared to give sound and reasonable advice when necessary and to insist on suitable recreation being found if it becomes obvious to him that this is not being done.

It has been shown that if the weekly output of a successful factory be plotted in graphic manner, a very characteristic curve is produced. On Monday morning after the interval of the week end the output will commence at a moderately high level. The curve will become higher on Tuesday and reach its maximum on that day. From then onwards there will be a gradual decline until on Friday the curve is at a level considerably below that on Monday morning. It is but natural that the worker will be fresh and ready for the duties of the week on Monday morning. It takes him some little time, however, to get into his stride and by Tuesday his output is at its maximum. If work were continuous during seven days of the week, the total output would certainly not be greater than when the work-

ing days are restricted to five and it is questionable whether it would be as great. Moreover, the health of the worker would undoubtedly deteriorate.

The development of facilities for utilization of workers' leisure was one of the subjects on the agenda paper of the Sixth Session of the International Labour Conference, held at Geneva from June 16 to July 5, 1924. The subject had been brought up for consideration two years previously and some difficulties were experienced with regard to it. The worker was inclined to resent the interference and did not realize that the fundamental idea behind the discussion was to be that of assisting him to use his spare time in a way that would be agreeable to himself and beneficial to the community. One of the problems associated with the question was the possibility that workers would utilize the hours provided for leisure in working for another employer. This could not, of course, be prevented and to some of the delegates it seemed that to forbid any such extra work would be an interference with the liberty of the subject. Those who have had any experience in Australia in the employment of labour, know that when adequate wages are paid and the working hours are suitable to the type of industry and to the employees, secondary employment is not sought to any extent.

Several questions of importance to medical practitioners were involved in the subject of the relationship of spare time to social hygiene. These include alcoholism, tuberculosis and venereal disease. In the Recommendation of the Conference the following paragraph appears:

> Whereas the utilization of the workers' periods of spare time cannot be separated from the general measures adopted by the community for promoting the health and welfare of all classes of society, the Conference, without attempting to examine in detail each of the great welfare problems the solution of which would contribute to improving the workers' status, recommends to the members:
>
> (i.) The encouragement of individual hygiene by the provision of public baths, swimming pools, *et cetera;*
>
> (ii.) Legislative or private action against the misuse of alcohol, against tuberculosis, venereal disease and gambling.

Indirectly related to these considerations are the questions of housing and of provision of institutions for the utilization of spare time. The purely economic side of the matter is so bound up with the hygienic aspect that it is almost impossible to separate them. The misuse of alcohol and the questions of tuberculosis and venereal disease and housing problems are undoubtedly the province of the medical practitioner and in relation to utilization of the workers' spare time merit his special consideration.

VENTRAL HERNIA.

The repair of ventral herniæ, especially in obese subjects, is one of the many unsatisfactory problems with which the surgeon has to deal. Whether the hernia has arisen as a sequel to an abdominal operation, whether it be a large, direct, inguinal hernia or an umbilical hernia, the same difficulties are encountered. The intra-abdominal pressure which may at times be great, is the factor which occasions all the trouble. When the contents of a hernial sac are returned to the peritoneal cavity and the edges of the opening in the fascia are brought together, the tension is necessarily great. The peritoneal cavity proper is suddenly required to accommodate extra contents. In the repair of the opening such materials as chromicized catgut, stout silk and kangaroo tendon have been used with varying success. Silver wire and such artificial structures as celluloid plates have been employed, but the results have not been satisfactory.

Several interesting methods of repairing these defects have recently been reported. Mr. Kenneth MacKenzie has been successful in the treatment of a large abdominal hernia, by the ingenious method of reflecting the *tensor fasciæ femoris* muscle from both thighs and swinging them across the front of the abdomen.[1] He points out that the attachment of the muscle to the ilium is of small size and that this allows of the easy swinging of the muscle. The nervous and vascular supply enter the muscle high up and are scarcely stretched when the muscle is in its new position. Mr. MacKenzie suggests that the method can be used for large inguinal herniæ and for herniæ in the middle line below the umbilicus. The lower borders of the tensor muscles may be sutured in the middle line.

Another method which should be attended by successful results, has been suggested in an important commmunication by Mr. W. E. Gallie and Mr. A. B. Le Mesurier on the transplantation of the fibrous tissues in the repair of anatomical defects.[2] They point out that the cells of fibrous tissue lie scattered among the fibres and are so accessible that even after transplantation of the tissue they are able to get sufficient nourishment from the bathing lymph to survive the operation. The authors carried out a series of experiments on the fibrous tissues of animals and as a result have evolved a method for the treatment of ventral herniæ. A few days after the transplantation of the sutures the surrounding tissues were hyperæmic and the whole area was covered with a thin layer of exudate. The suture was distinctly swollen. At the end of a week new blood vessels could be seen spreading through the film on the surface of the suture. At the end of the third week the film had been converted into ordinary areolar tissue. The inflammatory reaction gradually subsided and the tendon shrank until it appeared as a glistening, white, tendinous cord. Firm union can only be obtained if the areolar tissue is carefully scraped from both the suture and from the fascia into which it is sewn. Neglect to do this has been the cause of many failures. In the treatment of ventral herniæ the sutures are taken from the *fascia lata* and may be used freely. If necessary, the opening may be closed by weaving the sutures across the opening as in the darning of a sock.

[1] *The British Journal of Surgery*, July, 1924.
[2] *The British Journal of Surgery*, October, 1924.

Abstracts from Current Medical Literature.

OPHTHALMOLOGY.

Endocrine Origin of Primary Glaucoma.

J. IMRE, JUNIOR (*Archives of Ophthalmology*, May, 1924) had previously shown that while passing changes in blood pressure produce a corresponding temporary change in intra-ocular tension, a disturbance in the balance of the endocrine organs causes as a rule a lasting change in the intra-ocular tension. These changes may be an increase or decrease of tension and the glands mostly concerned in this regulation are the thyreoid, hypophysis, gonads and adrenals. Hyperfunction of the hypophysis and pregnancy with signs of hyperpituitarism are associated with decrease of eye tension. Hyperfunction of the thyreoid can likewise cause low eye tension. In osteo-malacia from hyper-dysfunction of the ovaries and perhaps the para-thyreoid the tension is exceedingly low. As increased function of the internal secretory glands is connected with low tension, it may be supposed that decreased function of the same glands is combined with high tension as in certain pregnant women and in some patients with *dystrophia adiposo-genitalis*. It was decided to put this idea to certain clinical tests. Some of the observations date back four years. A man of sixty-eight had several operations for glaucoma. He manifested involution of the thyreoid, the *sella turcica* was slightly enlarged, the face and hands were acromegaloid. He was given thyreoid extract and later other endocrine extracts. The result was enduring as far as tension was concerned, but the author states that the vision is failing. A woman of twenty-three had been operated upon for glaucoma. She became pregnant and the tension became low. This was associated with hyperfunction of the pituitary. A woman of fifty was given ovarian extract and her ocular tension remained within normal limits without pilocarpine. Other extracts were not effective. A woman of fifty-six was much benefited by thyreoid extract. A man of fifty-eight did excellently without operation when given testicular tablets. The author regards the histories of thirty-one patients in all as justifying the belief that in a large percentage of primary glaucoma constitutional anomalies are the basal causes. Hyperfunction of an endocrine gland is not identical with increased normal function.

PERCY FRIDENBERG (*American Journal of Ophthalmology*, November, 1924) discusses certain aspects of the glands of internal secretion and sees a resemblance between an acute attack of glaucoma and other somatic disturbances, such as anaphylaxis, hæmoclastic crisis and protein shock. The picture of acute glaucoma is to the endocrinologist one of vagotonic shock originating in the eye. The theory that glaucoma is due to acute œdema of the vitreous puts it in the group of vagotonic manifestations such as an angio-neurotic œdema, hives and serum sickness. Possibly "adrenal individuals," choleric and prone to anger, tend to suffer from glaucoma, while those suffering from hyperthyreoidism would present the picture of Graves's disease. The drugs used in acute attacks are all vagotonic and pilocarpine and eserine and the use of "Pituitrin" have been suggested. Further data are required in the relation of intra-ocular tension to menstruation, pregnancy, menopause and the various manifestations of dyscrinism.

The Application of Immunology to Ophthalmology.

ALAN C. WOOD (*Archives of Ophthalmology*, July, 1924) has endeavoured to correlate recent experimental studies in immunology to various diseases of the eye observed clinically. The forms of conjunctivitis related to immune reactions are hay fever, vernal catarrh, hypersensitivity to pollens, food anaphylaxis and phlyctenular disease. Six out of seven patients with irritative conjunctivitis studied by the author manifested a pollen hypersensitivity and likewise two patients with vernal catarrh. Fort has gone further and has desensitized his patients with the pollen to which they are hypersensitive, to their great advantage. Coulon discovered hypersensitivity in one patient to egg protein and in another to certain fish protein. The evidence supports the view that phlyctenular disease is associated with tuberculosis. It is probably an allergic phenomenon related with tuberculous infection. Wesseley has shown that parenchymatous keratitis may be produced by experimental anaphylaxis. The mechanism whereby the ordinary interstitial keratitis occurs is far from clear, the *Treponema pallida* being absent from the lesion. It is supposed to be due to a sensitization of the cornea by the *Treponema pallida* or its products during intra- or extra-uterine life. A further absorption of syphilitic virus during childhood in the sensitized cornea produces a keratitis. Lens protein of various animals is alike; it is organ specific and not species specific. Romer, Guyer and Smith have done valuable work in this connexion. Verhoeff and Lemoine have shown that when lens substance in the anterior chamber after rupture of the capsule or after cataract extraction is associated with violent inflammation, the patients may be proved to be hypersensitive to lens protein. Where uneventful healing occurred there was no such hypersensitivity to lens protein. The inflammatory reaction they termed *endophthalmitis phacoanaphylactica*. By a simple skin test an operator is able to determine the presence or absence of a hypersensitivity to lens protein in a patient; if present the patient may be desensitized before operation. Elsching holds that in sympathetic ophthalmia pigment is absorbed by the patient and that a condition to hypersensitivity to pigments is created, especially in the other eye. Any further absorption of pigments produces an anaphylactic intoxication, manifested in the second eye as sympathetic ophthalmia. By a skin test a patient may be tested as to hypersensitivity to pigment. There is a growing belief that various uveal inflammations associated loosely with rheumatism and also certain forms of subacute and relapsing arthritis may really be allergic phenomena.

Cyclectomy: A New Operation for Glaucoma.

F. H. VERHOEFF (*Archives of Ophthalmology*, May, 1924) performs his operation of cyclectomy as follows. A conjunctival flap is made on the upper outer quadrant of the globe with the base towards the equator. With a knife needle an incision five millimetres long and parallel to the *ora serrata* is made through half the thickness of the sclera and five millimetres from the limbus. The wound is carefully deepened where possible by picking up the fibres with the point of the knife and cutting from within out. The ciliary body presents in the wound. Next through a small limbal incision a peripheral iridectory is made. The knife needle or spatula is introduced on the flat under the anterior lip of the scleral wound and the ciliary body is separated from the sclera for a short distance. The protruding part of the ciliary body is now grasped with forceps and excised. If vitreous presents, some of it is excised. The author is so far pleased with the operation.

A New Theory of Accommodation.

LINDSAY JOHNSON (*Archives of Ophthalmology*, September, 1924) describes a new theory of accommodation. He cannot accept Helmholtz's theory as it is inconceivable that the lens capsule is kept on the stretch when the eye is at rest. His explanation of accommodation is as follows: The two ciliary muscles, the radiating and circular, contract and their combined action drags forward the chorioid and pushes the ciliary processes into the circumlental space, aided by the circular muscle of Müller. This tends to compress the fluid in this space, forcing the capsule of the lens inwards and causing the two surfaces to bulge. The posterior surface cannot be displaced backwards on account of the incompressible vitreous; the anterior surface can bulge forwards, the aqueous making room for it by retreating into the spaces of Fontana and the canal of Schlemm. He supports his hypothesis by experiments and observation.

LARYNGOLOGY AND OTOLOGY.

Rhabdo-Myosarcoma of the Soft Palate.

G. EWART MARTIN AND W. A. ALEXANDER record a case of a rare condition, rhabdo-myosarcoma, arising from the soft palate in a child of six years (*Journal of Laryngology and Otology*, June, 1924). The complaints were constant discharge from the nose, snoring at night and discharge from the left ear. A large mass was found in the naso-pharynx, whitish, firm and covered with small polypoidal projections. Microscopical examination revealed a neoplasm in which there was cross striation of the elements. The mass grew from the supero-posterior aspect of the soft palate and sent a prolongation into the left posterior choana. As much as possible was removed, but it recurred rapidly and involved the glands on the left side of the neck. The whole of the soft palate and adjacent tumour tissue, together with the glands, were, therefore, removed and the whole area treated with the diathermy button. A little later an aural polypus was removed which proved to be an extension of the palatal growth. The tumour was extending rapidly; four tubes of radium of ten milligrammes each were inserted into the naso-pharynx, neck and left auditory meatus. These were removed after an application of 7,760 radium hours. The swellings in the naso-pharynx had almost entirely disappeared, but recurrence was soon evident and the child died suddenly from œdema of the upper aperture of the larynx less than ten months after first being seen. The authors state that tumours of voluntary muscle, rhabdomyomata, are extremely rare and that tumours of any sort originating in the soft palate are rare. They advise radical treatment by operation and radium from the outset. In this case metastasis took place by the lymphatics and not by the blood stream, thus affording exception to the broad rule that sarcoma tends to spread by the blood.

Foreign Bodies in the Bronchi.

THOMAS MCCRAE (*The Lancet*, April 12 and 19, 1924) states that as a rule a foreign body passes downward in the air passages as far as is possible. It may remain in the trachea, but is more likely to pass on into the right main bronchus, the most frequent site of lodgment being just below the giving off of the right upper lobe bronchus. The next most frequent is the corresponding spot on the left side. Next come the stem bronchi, the dorsal branches being more often invaded than the ventral branches. The branch most frequently invaded is the left lower lobe bronchus which is given off immediately below the upper lobe bronchus. There may be a great variation in the immmediate symptoms. If the body remains in the trachea there is usually extreme distress with dyspnœa, decreased if the body passes into a bronchus. A movable body in the trachea generally causes much distress; an object such as a safety-pin may cause but slight symptoms. In many cases there is considerable choking, strangling and coughing which soon lessen. There may not be sufficient symptoms at the time of aspiration to attract attention. Many factors, such as age, trauma, pressure, irritation from vegetable substances and infection, may influence the changes which result from the presence of the foreign body. These changes may occur in combinations and the resulting physical signs may manifest great variations. This is particularly evident if the blocking of the bronchus is not complete and in this case the signs may change from hour to hour. When the body is in the trachea, dyspnœa, cyanosis and cough are usual as well as a loud wheeze more highly pitched and intense than that of bronchial asthma; a slapping sound may be present with each respiration caused by the body striking against the larynx and this may be accompanied by an impact felt by the fingers on the trachea. Subglottic swelling is common, giving rise to hoarseness and a croupy cough. Often diphtheria is suspected. Direct laryngoscopy and the taking of cultures will exclude it. The body may plug the bronchus completely, leading to collapse of the lung or an increase of secretion into the cells, the lung may then become "water-logged." Or the body may allow air to pass in but not out, leading to an obstructive emphysema. Or there may be a partial blocking allowing some air to pass in and out and secretions can escape. Certain other factors operating to a varying degree include swelling of the mucosa, granulations, secretion which is always present below the foreign body, shifting of the foreign body, the results of a previous bronchoscopy, the many possible variations in the relative amounts of air and secretion in the affected lung and late changes, such as abscess formation, bronchiectasis and fibroid changes. Cough may be present, dyspnœa rarely occurs unless a main bronchus is blocked, pain is rare, but fever is almost invariable at some time or other. The principal complications are pneumothorax, empyema and hæmorrhage.

Hay Fever and Asthma.

FRANK J. NOVAK (JUNIOR) AND ABRAHAM R. HOLLENDER (*Illinois Medical Journal*, April, 1924) believe that individuals in whom there is a deficiency of calcium and probably inorganic phosphates in the blood serum, are often the subjects of hay fever, hyperæsthetic rhinitis and bronchial asthma, the symptoms of these affections being induced by various irritants or excitants, such as pollens. The administration of calcium alone does not influence appreciably the diseases in question, thyreoid gland substance alone relieves some; calcium and thyreoid gland combined in properly adjusted dosage, produces favourable results in many patients. In hyperæsthetic rhinitis the oral administration of calcium lactate and thyreoid extract has proved quite efficacious. In hay fever and asthma the oral method should be tried; if unsatisfactory the calcium chloride should be given intravenously and the thyreoid gland preparation by mouth. Calcium lactate is given in doses of 0.3 to 1.2 grammes, the thyreoid gland desiccated in from 0.015 to 0.03 gramme at first three times daily and later twice and once daily. For the intravenous exhibition of calcium chloride five cubic centimetres of a 5% sterile solution should be the initial dose; later as much as ten cubic centimetres may be given. This solution should be injected very slowly. After the calcium content of the blood has been raised, it is permanently fixed by means of mercury vapour quartz lamp irradiations. If this is not available, the prolonged administration of cod liver oil may give excellent results as it has been demonstrated to exercise a regulatory power on the calcium and phosphorus metabolism of the organism. Natural sun baths daily also increase the blood calcium. Food rich in calcium salts should be included in the dietary.

Nystagmus During the Ménière Attack.

DAN MCKENZIE (*Journal of Laryngology and Otology*, June, 1924) records two cases in which he was able to observe nystagmus during an attack of the familiar Ménière type. In one he found a pronounced spontaneous nystagmus to the affected side on moderate deviation and the effort to deviate made the patient giddy. In the other case the nystagmus was directed sometimes to one side and sometimes to the other during the attack and now and then it became vertical. McKenzie thinks there is no rule as to the direction of nystagmus during a Ménière attack.

Uvulectomy.

ARTHUR E. EWENS (*The Indian Medical Record*, January, 1924) claims that to the uvula must be ascribed a large share of blame for protracted naso-pharyngeal catarrh, tonsillitis and chronic hypertrophic conditions in the nose and throat. A series of approximately two thousand cases, extending over a period of twenty years in which uvulectomy (complete) had been performed by the author, provided the material for his conclusions. He states that the operation never fails to effect prompt improvement of catarrhal conditions in the nose and throat. There are few coughs of any description that do not yield in some degree at least, susceptibility to "cold" and to all acute naso-pharyngeal and laryngeal affections is greatly lessened, chronic hypertrophy of the faucial tonsils and other lymphoid structures is materially reduced and *tinnitus aurium* often relieved. Nasal obstruction due to enlarged turbinates is lessened and relief from associated sinus symptoms obtained. Improvement has also been noted in cases of sub-acute arthritis, post-influenzal neuritis and myositis. Asthma and hay fever show favourable reaction and snoring is abated.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Austin Hospital, Heidelberg, on March 4, 1925. The meeting took the form of a series of clinical demonstrations by members of the staff of the Hospital.

Urinary Incontinence Due to Lesions of the Spinal Cord.

DR. H. F. MAUDSLEY showed several patients who were suffering from urinary incontinence consequent on lesions of the spinal cord.

The first patient was suffering from *paralysis agitans* with establishment of reflex micturition. He had had a mild form of diabetes for seventeen years and at the time of demonstration was the subject of occasional glycosuria. The onset of *paralysis agitans* had occurred six years previously and the patient had been bed-ridden for eight months. Four months previously he had lost control of the bladder, so that it became distended and he suffered from so-called "overflow incontinence." Catheterization had been practised regularly with careful asepsis. The bladder wall had recovered tone and reflex micturition had been established. The catheter had been left in and the urine had passed at half hourly intervals. Dr. Maudsley pointed out that the neurological signs were those of *paralysis agitans*. There were no signs of a lesion of the pyramidal tract and sensation was normal.

The second patient shown by Dr. Maudsley had sustained a fracture of the spine six years previously in the region of the sixth dorsal vertebra. The lesion had been practically complete. All forms of sensation had been lost and complete flaccid paralysis below the level of the knee, together with loss of sphincteric control, had been present. For the first three months after the occurrence of the accident the patient had suffered from "overflow incontinence." Automatic control of the bladder had gradually been instituted. At the time of demonstration the patient passed a moderate quantity of urine every four hours and no dribbling occurred in the intervals.

Dr. Maudsley showed a third patient who suffered from *spina bifida occulta*. He had never had any control of his bladder. On examination definite scolio-kyphosis with maldevelopment of the musculature below the xiphisternum and contraction of the feet were present. Except for slight flexion of hips and knees all voluntary power in the lower limbs was absent. The knee jerks were present. The plantar reflex was strongly extensor in type. The abdominal reflexes were exaggerated. Sensation in the lower limbs was present to a pin prick, but poor to light touch. The localization of stimuli decreased in the lower lumbar and sacral segments. Automatic control of the bladder had been instituted.

Sequelæ to Encephalitis Lethargica.

Dr. Maudsley showed several patients who were suffering from symptoms which were the result of *encephalitis lethargica*.

The first patient had been perfectly normal until three years previously. He had then suffered from "influenza" and during this time he had been drowsy. No diplopia nor delirium had been present and the patient had made a good recovery. After a month, however, his muscles had become stiff. On examination it was seen that the patient was suffering from a typical *paralysis agitans* syndrome.

A second patient who manifested a post-encephalitic syndrome, had suffered from the original attack four years previously. This had been described as influenza.

A third patient who manifested a post-encephalitic syndrome, had suffered from a so-called influenzal attack seven years previously.

Disseminated Sclerosis.

Dr. Maudsley also showed two patients who were suffering from disseminated sclerosis.

In one patient the condition had been practically stationary for a year. On examination the cranial nerves were intact except for a slight nystagmus which became evident when the patient looked to the right. The deep reflexes were exaggerated, especially on the right side. The abdominal reflexes were absent, the plantar reflexes were extensor in type. Sensation was good and there was no sphincteric involvement. When the right upper limb was at rest, there was very little muscular rigidity; when the patient extended the limb a fine tremor was present in the forearm and hand. Rigidity was noticeable on passive movement and athetoid movements of the fingers were seen. When the patient was asked to execute any movement with her right hand, the tremor became coarser and grossly of the intentional type. A similar type of rigidity and tremor was manifested in the right lower limb. Little abnormality was present in the limbs on the left side. Voluntary muscular power was moderately good throughout.

In a second patient gross nystagmus was present in all directions. No abnormality was present in the cranial nerves. *Staccato* articulation was present. The deep reflexes were much exaggerated. The abdominal reflexes were absent. The plantar reflexes were extensor in type. In the right arm no abnormality of movement was present and no rigidity. Hypotonia was present when the limb was at rest. In regard to voluntary movement choreo-athetoid movements were present to a considerable extent and the amplitude was in inverse ratio to the delicacy of the movements. Forced movements were very powerful and were controlled only when the patient allowed his muscles to relax.

Empyema.

Dr. Maudsley also showed a female patient whose condition eighteen months previously had been diagnosed as pulmonary tuberculosis. Tubercle bacilli had been found in the sputum. The patient had been steadily going down hill. After admission to the Austin Hospital an empyema had formed on the left side. Mr. Roche had resected a rib and drained the empyema. Pneumococci had been cultured from the pus. The patient had made an uninterrupted recovery, was putting on weight and felt better than she had done for years. Dr. Maudsley pointed out that the percussion note was dull all over the left side of the chest. Breath sounds were diminished. Vocal fremitus and vocal resonance were also diminished. Signs of compensatory emphysema and fibrosis were present in the right lung and no signs of active pulmonary tuberculosis could be detected. A skiagram demonstrating the condition was shown.

The Treatment of Cold Abscesses.

MR. HUGH TRUMBLE, M.C., described the method of dealing with cold abscesses. He said that he used Mayer-Meltzer needles, sizes 14, 15, 16 and 17, for aspiration. He employed Calot's fluids for injection into the abscesses and used spiral wire in difficult cases. The aspiration should be repeated often enough to prevent bulging of the skin and until no further increase in the contents took place. It was his experience that clear, straw-coloured fluid was often obtained after several aspirations.

Mr. Trumble showed several patients whose cold abscesses had been treated by aspiration.

The first patient was a man aged twenty-three years. He suffered from tuberculosis of the right hip joint. An abscess over the trochanter had been aspirated three times in May, 1924. Calot's fluid had been injected. Owing to the great difficulty of aspiration a very large needle had been used. A sinus had resulted and this healed and reformed at intervals. Mr. Trumble said that this case indicated one of the causes of failure.

A second patient was a male, aged twenty years, who suffered from tuberculosis of the lumbar region of the spine with a psoas abscess. The onset of symptoms had occurred late in 1922. The abscess had been discovered on March 27, 1,924. The abscess had been aspirated on three occasions, on April 4, 8 and 15, 1924. Calot's fluid had been injected on each occasion. At the time of demonstration a fullness was present in the left iliac fossa. No increase in the fullness had occurred during the previous ten months. No sinus was present. A skiagram of the condition was shown.

A third patient was a female, aged twenty-nine years, who suffered from tuberculosis of the lower dorsal and lumbar vertebræ. Onset of symptoms had occurred in June, 1921. A psoas abscess had appeared on the right side in December, 1923. The abscess had been aspirated and injected with Calot's fluid on ten occasions between July 20, 1924, and November 26, 1924. No sinus had formed. No increase in the size of the swelling had occurred during the previous three months and no pain was present. Skiagrams illustrating the condition were shown.

A fifth patient was a male, aged thirty-nine years, who suffered from tuberculosis of the spine. A psoas abscess had been incised before the patient's admission to hospital and sinus formation had resulted. Abscesses in both hips had been aspirated. The abscess on the left side had been aspirated eleven times between August, 1924, and February, 1925, and that on the right side seven times between September, 1924, and February, 1925. No sinus formation was present.

A sixth patient, aged twelve years, a male, suffered from tuberculosis of the hips of many years' duration. The joint had become ankylosed in a bad position. When first seen in June, 1924, the patient had manifested an abscess over the trochanter. This had been aspirated on ten occasions and injected with Calot's fluid. On the last three occasions, in October, 1924, clear, straw-coloured fluid had been obtained. No further accumulation of fluid had occurred and no sinus formation.

Caseinogen Jackets.

Mr. Trumble described the method of construction of caseinogen jackets used in the treatment of spinal tuberculosis when plaster was not tolerated or during convalescence to support the spine when the patient got up. These jackets were strong and light and lasted well.

Mr. Trumble explained that a jacket was applied to the patient and removed. Inside this jacket which was used as a cast, a hollow mould was made. On this mould the caseinogen jacket was constructed. Mr. Trumble demonstrated the materials which were used. He described the methods used in the correction of deformities due to tuberculosis of the spine. In the first method cotton wool packing was introduced through a dorsal opening in the plastic jacket over the gibbosity. The amount of the packing was frequently increased. In the second method hydraulic pressure from a column of water about one metre high was used. An india-rubber bag was built in under the jacket over the gibbosity and between the skin and the jacket. The bag was filled with water and connected by tubing with a reservoir placed up to a metre above. The water moved with respiration and kept up a continuous pressure.

Mr. Trumble showed two patients in whom the latter method had been used.

The first patient was a boy nine years of age who suffered from tuberculosis of the dorsal and lumbar vertebræ. Extreme deformity had been present. The patient had been treated since June, 1923, in a plastic jacket. Pressure had been made on the gibbosity in the first instance by wool packing and later on by hydraulic pressure through the medium of a rubber bag built in under the plastic jacket. Mr. Trumble demonstrated by photographs, tracings and skiagrams the improvement which had taken place.

The second patient was a girl, aged nine years, who suffered from tuberculosis of the dorsal region of the vertebral column. She had been treated since January, 1924, in a plastic jacket. Wool packing had been used and improvement had been slow. Hydraulic pressure had recently been brought to bear on the gibbosity and the great improvement which had resulted, was demonstrated by photographs, skiagrams and tracings.

The Mercury Vapour Lamp.

Dr. W. C. G. Godbehear demonstrated the mercury vapour lamp. He said that at one end of the visible spectrum the infra-red or heat rays were found and at the other end the ultra-violet or chemical rays. Beyond the ultra-violet region were the X-rays and the radium rays. The curative value of solar radiations was due mainly to the luminous and ultra-violet rays and not so much to the heat rays. Ultra-violet rays were absorbed by smoke and dust. Good results were obtained in the Swiss mountain atmosphere. The mercury vapour lamp represented the artificial mountain sun. Heat rays did not penetrate the skin. Ultra-violet rays penetrated the outer layers of the skin and caused a hyperæmia of the vessels of the skin with general benefit to the body and also with bactericidal results. X-rays penetrated the skin and the results of this penetration were seen in deep X-ray therapy. The "Sollux" lamp was an incandescent lamp. The glass bulb was filled with nitrogen and an incandescent filament of tungsten wire. This wire bore a heavy current and thus gave an intensive light radiation. The radiation produced a hyperæmia of the skin and aided the absorption of the ultra-violet light. Dr. Godbehear said that it was useful to use the "Sollux" lamp and the mercury vapour lamp simultaneously.

Dr. Godbehear showed several patients who had been treated with the mercury vapour light and the "Sollux" lamp at the Austin Hospital. He said that good results were indicated by tanning of the skin, improved sleep and appetite, gain in weight, a feeling of well-being and improvement in temperature charts. In the treatment of tuberculous joints with or without discharging sinuses a start should be made by exposing the body for two minutes at a distance of one metre. The exposure was increased to thirty minutes at a distance of sixty to seventy-five centimetres (twenty-four to thirty inches). Some patients were treated on five or six days in each week, others were treated during alternate weeks.

Old tuberculous glands were treated with general irradiation in the manner described for tuberculous joints. General improvement was manifested.

In the treatment of tuberculous peritonitis general irradiation was used and the "Sollux" lamp was applied to the abdomen. General improvement resulted and relief from pain was obtained.

In the treatment of pulmonary tuberculosis gradual increments were made alternately to the front and the back of the chest. Several patients had manifested general improvement, gain in weight, fall in temperature and a diminution of dyspnœa. Treatment had not been carried out long enough to determine whether other than temporary results could be obtained.

In the treatment of renal tuberculosis general irradiation was practised similar to that used in the treatment of tuberculous joints and the "Sollux" lamp was applied to the abdomen. General improvement resulted and relief from pain was obtained. The urinary symptoms subsided with other treatment.

Patients suffering from rheumatoid arthritis of long standing were treated by general irradiation and local applications were made with the "Sollux" lamp.

Relief from irritability of the skin could be obtained by general irradiation in chronic eczema.

Relief from pain was obtained when local applications of light from the "Sollux" lamp were made to painful joints, fibrositis, chronic neuritis and malignant ulcers.

It had been found that healing of a chronic post-operative mastoid condition had resulted from local application of ultra-violet rays.

Deep X-Ray Therapy.

Dr. H. Flecker demonstrated a series of patients who had been treated by deep X-ray therapy.

A male patient, aged fifty-nine years, had suffered from an ulcer of the upper lip of thirty years' duration. The ulcer had spread until the destructive process had involved the upper lip, the anterior part of the alveolus of the maxilla, the palate and the anterior part of the nose. Deep X-ray therapy, ultra-violet radiation and diathermy had been used, much healing had taken place and the patient's distress had been alleviated.

A female patient, aged thirty-one years, had first noticed a swelling in the neck in July, 1919. Since then several operations for removal of glands of the neck had been undertaken. A diagnosis of lympho-sarcoma had been made by a pathologist. The patient had been admitted

three months previously in an emaciated and weak state, complaining of dysphonia, dyspnœa, irritable cough and so forth. A diagnosis of recurrence in the mediastinum had been made. Deep X-ray therapy had been given on December 19, 1924. The patient was completely relieved of symptoms and was anxious to return to work.

A male patient, aged forty-six years, had undergone removal of the right testis for teratoma in 1922. He had been admitted to hospital three months previously with a large recurrence in the inguinal region. He had been much emaciated and œdema of the left leg had been present. At first he had refused treatment as he appeared to be dying. A single dose of deep X-ray treatment had been given on January 27, 1925. The patient was no longer bedridden. His weight had been increased from 50.7 kilograms (eight stone one pound) to 57.5 kilograms (nine stone four pounds). The secondary deposits had been reduced to small fibrous nodules and the patient was stronger in every way.

Fluid had been removed eighteen months previously from the right side of the chest of a male patient, aged fifty-five years. A small growth had been excised from the fifth rib on the right side and this had proved to be carcinoma. The axillary glands had been enlarged. On admission the percussion note over the right lung and the axilla had been impaired. A diagnosis of primary carcinoma of the lung had been made. The patient's chief complaint had been dyspnœa. A single dose of X-ray treatment had been given on December 3, 1923. The patient was free from dyspnœa and clinically well.

A patient who had been demonstrated on a previous occasion and who had last been treated by deep X-ray therapy for an extensive rodent ulcer of the face on December 12, 1922, manifested no evidence of recurrence.

A female patient whose condition had been described on a previous occasion, had been treated by a single dose of X-rays for lupus of the palate. The X-ray treatment had been given on September 14, 1922. The patient was free from recurrence and had been in constant employment since her discharge nearly two years previously. She wore an artificial nose to hide her deformity.

Dr. Flecker also showed a series of skiagrams to demonstrate the progress of tuberculous bone lesions under X-ray treatment. One patient was shown whose tuberculous dactylitis had disappeared immediately after X-ray treatment. A similar series of skiagrams was shown to demonstrate the process of improvement after single applications in a case of extensive involvement of the whole wrist including the radius and ulna and the bases of the metacarpal bones.

Pathological Specimens.

Dr. Gordon Cameron exhibited a series of pathological specimens. The first group comprised a series of adrenal glands secured from four patients who had died of Addison's disease. The specimens were so chosen that the lesions demonstrated reflected the clinical course of the disease in the several instances. Massive caseation with no limiting fibrosis was shown in the adrenal of a patient in whom the course of the disease was of only six weeks' duration and in whom the only other lesion was cavitation in one lung. In two subjects in whom the progress of the disease had been less rapid, caseation and fibrosis were to be observed throughout both adrenals. In the fourth patient whose history had been more protracted, the pathological changes consisted of fibrosis and calcification.

Dr. Cameron further showed a carcinoma of the stomach of the so-called "leather bottle" type; it had been determined microscopically as of columnar-celled structure and had occasioned secondary deposits in the retro-peritoneal glands and in the liver.

A specimen of carcinoma of the head of the pancreas illustrated concomitant ulceration into the duodenum and obstruction of the bile duct which resulted in great distension of the gall bladder. Secondary deposits were shown in the pre-aortic glands and in the liver.

Two large metastatic melanotic sarcomata, removed from the tissues in front of the sternum and from the mid-line of the back, were exhibited. The patient had given a history of having had a "mole" in the occipital region which was shaved off by a barber. Six months later a pigmented growth had re-appeared at the site of the original mole and within a few weeks metastases which grew extremely rapidly, had appeared in the front of the chest and over the dorsal region of the spine. *Post mortem* the growth had been found also to have become deposited in the heart.

Specimens illustrating tuberculous disease of the kidney, ulceration of the bladder, tuberculous cavitation of the prostate and caseating nodules in the epididymis were shown as they were obtained from a patient who had suffered from pulmonary tuberculosis for eighteen years; symptoms referable to the urinary system, however, had not appeared until three months before death.

Dr. Cameron also showed a series of graphs which recorded some observations made by Dr. Flecker and himself on the effect of exposure to deep X-rays on the blood sugar. The charts had been constructed from the results obtained in a series of guinea pigs and in a number of human subjects. Therapeutic doses of rays had been employed and in general the effect on the blood sugar was to cause a sharp fall from the normal figure of 0.08% to 0.1% to 0.05%.

Ophthalmology.

The ophthalmoscopic changes in disseminated sclerosis and in retinitis in a patient with lardaceous disease were demonstrated by Dr. Mark Gardner.

Stricture of Urethra: Multiple Perineal Fistulæ.

Mr. Cedric Roche showed a male patient, aged sixty-one years, who had undergone several operations for bulbar urethral stricture, the disability due to which had first become apparent twenty years previously. When he first came to the Austin Hospital the patient had been discharging all his urine through the fistulæ, none passing along the normal channel. It had been found impossible to pass any instrument of the nature of a sound or catheter.

Operating under spinal anæsthesia Mr. Roche had excised the fistula bearing mass of scar tissue; this had included the posterior half of the scrotum into which urine had been extravasated on more than one occasion. The dissection had exposed the pubic bone, the *compressor urethræ* muscle and the anterior and normal portion of the urethra. The *corpus spongiosum* and urethra had been freed by dissection to a degree which permitted the anterior portion of the urethra to be drawn back about five centimetres and sutured to the posterior part at the level of the transverse perineal muscle. The union had been carried out over a large sized catheter passed into the bladder. Healing had occurred uneventfully and although it had been necessary for some months to pass a large sound at intervals, latterly no instrumentation had been needed, as the lumen of the urethra remained patent and urine was passed along the penis in a normal manner.

NOMINATIONS AND ELECTIONS.

The undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

Bevington, William Macfarlane, M.B., Ch.M., 1924 (Univ. Sydney), Royal Prince Alfred Hospital.

Edwards, Colin Munro, M.B., Ch.M., 1924 (Univ. Sydney), Victoria Street, Ashfield.

Moppett, Warnford, M.B., Ch.M., 1923 (Univ. Sydney). "Wilga," The Crescent, Vaucluse.

O'Donnell, James Michael Antony, M.B., Ch.M., 1924 (Univ. Sydney), Sydney Hospital.

Rutherford, Keith Powell, M.B., Ch.M., 1924 (Univ. Sydney), McIntosh Street, Gordon.

Shute, Redvers Buller, M.B., Ch.M., 1923 (Univ. Sydney), c.o. Dr. J. E. Webb, Mortdale.

Stormon, Edward Ambrose, M.B., Ch.M., 1923 (Univ. Sydney), Willoughby Road, Naremburn.

Will, Ewan Murray, M.B., Ch.M., 1923 (Univ. Sydney), Greenknowe Avenue, Potts Point.

Correspondence.

DIET IN TYPHOID FEVER.

SIR: Dr. Kinsella's article on the diet of typhoid fever, followed by Dr. Thelander's letter, calls for some comment. In 1902-03 I had charge of over five hundred cases of typhoid fever. I was faced with the necessity of rapidly evacuating the patients to make room for others. They were often sent to common lodging houses when hardly convalescent. I, therefore, felt the desirability of preventing the extreme malnutrition and weakness that resulted from the usual treatment. I began to feed them from the beginning, determining the quantity and quality of food not according to the calories required to maintain nutrition, but solely according to the appetite of the patient. It is just as undesirable to force food upon an unwilling patient as it is to starve a hungry one. The results exceeded my expectations. The mortality, in previous years never less than 10%, fell to 5.8%. I noted then that most of the distressing symptoms that previously occurred, were almost entirely absent; distension was lessened, delirium almost abolished, general well being greatly improved and complications extremely rare. Hæmorrhage was probably uninfluenced, but the patients were able to stand a severe hæmorrhage much better. I came to regard loss of appetite as one of the most grave symptoms. Liberal diet associated with free movement in bed will effectually prevent such complications as "white leg" and cerebral thrombosis, except in cases associated with severe septic conditions such as cholecystitis. But I can see neither the necessity nor the desirability of getting a patient out of bed for that purpose.

The diet I used began with such articles as jellies, custard, maizena, arrowroot, meat essences, followed soon by bread and milk, eggs and minced meat, minced only in deference to popular prejudice.

Yours, etc.,

W. SPAULDING LAURIE.

Melbourne,
March 7, 1925.

"THE EDUCATION OF THE PUBLIC *RE* SURGICAL TREATMENT."

SIR: In your article *re* "The Control of Surgeons" of February 21, you make this statement: "We fear that in the future as in the past the public must be warned that if they wish safety in surgical treatment, they should entrust themselves to practitioners who have been chosen to occupy the positions as honorary surgeons to the great public hospitals."

Such a statement as this, if published in the lay press and taken literally by the outside public, could in my opinion do considerable harm in the country districts by undermining the confidence that patients have in their regular medical attendant and also do a great injustice to numerous capable surgeons who are doing good surgical work in various country centres. You point out in another portion of the article that the country practitioner "must have recourse to operative treatment in emergency." How can it be expected that this emergency surgery will be efficiently performed if the country surgeon, because he does not occupy an honorary position on the staff of one of the great public hospitals, is to be debarred from all major surgery other than the said emergencies?

I am very strongly of the opinion that in those country centres where there are adequate public and private hospital facilities, it is to the advantage of the patients generally that the local practitioners should do as much surgery as is necessary in treatment, with the exception of certain comparatively rare operations which fall definitely within the specialist's scope.

There is, I think, litle doubt that a great proportion of bad surgery is due to lack of efficient training. Every student after qualification should have at least twelve months' residence in one of the large public hospitals and half this period should be spent on the surgical side, during which time he should be permitted to perform at least the commoner operations to be met with in practice under the supervision of his "honorary."

We do not surely want to drift towards that condition in which the general practitioner is simply a medium for passing patients on to various specialists. The obvious result of this would be that only men devoid of ability and ambition would take country practices and the rural population would be left to the mercy of the least efficient members of the profession

Yours, etc.,

F. CH. DE CRESPIGNY.

Jugor Street, Ararat,
March 15, 1925.

[Dr. de Crespigny misleads himself and may mislead his readers by quoting a sentence of the leading article out of its context. There has been a demand to initiate in Australia a body similar in its objects to the American College of Surgeons in order to enable the public to distinguish between competent surgeons and incompetent ones. We maintain that the plan is impracticable and would not yield the desired results. The public is not able to judge whether any given practitioner is a skilful and capable operating surgeon, since ability to judge must be dependent on knowledge of surgery. The possession of a degree or qualification in itself is obviously "not in itself a sufficient guarantee." The surgeons chosen to occupy positions on the staffs of the great public hospitals are undoubtedly competent surgeons. We know of no other guide for the public. At the same time there are many very skilled surgeons who do not hold positions of this kind. We have on many occasions stated that the medical practitioner in the country districts of Australia is possessed of remarkable resource and ability and his patients derive great benefit from his surgical and medical treatment. But it is obvious that he would be unwise to undertake some of the more difficult surgical operations, save in emergency, if someone with large experience in a great public hospital were available. The general practitioner has very many functions that are more important than the performance of surgical operations. The point that we would wish to emphasize is that the discussion in the article was not the competence of the medical practitioner as a surgeon, but the criterion of his competence. —EDITOR]

TREATMENT OF DIABETES BY "INSULIN" AND PRICKLY PEAR.

SIR: I wish to report on the treatment of a case of severe diabetes with "Insulin" and a preparation made from prickly pear leaf. Owing to the marked reduction in the blood sugar as a result of treatment with prickly pear after a prolonged course of "Insulin," I feel that the result ought to be reported.

A school teacher (J.R.) reported to my patient that he was so bad with diabetes twelve months ago that he had to discontinue his work. He started then to treat himself with prickly pear prepared as follows: "One pound of shrubby prickly pear leaf is put into one quart of cold water and then boil it till it reduces to one pint." He took one wineglass full three times a day. This preparation does not keep and has to be prepared daily. Since he has been taking this preparation he says that he has been in perfect health and that he has been testing his urine and it has been all right (test not stated). And he has been able to resume his teaching as before. My patient, a Mrs. B., was a very marked case of diabetes and a most intractable one. Since March, 1924, I had been injecting forty units of "Insulin" daily. Under "Insulin" treatment the vulval irritation cleared up, but still two or three drops of urine would immediately reduce one inch of Fehling's in a test tube and generally one drop would do so. During this nine months the blood sugar test kept between 0.26% and 0.3%. Her skin was getting very

tender with the injections and her condition was not altogether satisfactory. About the beginning of January Mrs. B. gave me this report about the school teacher, so I advised her to try the preparation. She took one pint per day. I tested her urine two or three days after she took it and was astonished to find that it took nearly twelve to fifteen drops of urine to reduce the Fehling's, by far the best test that has been done in the last eight years. Dr. Morrison has kindly done the blood sugar test at the Wallsend Hospital and the results are as following. Only giving one injection daily twenty units "Insulin" and one pint of prickly pear the blood test has kept at 0.19% (the lowest test done without prickly pear it was 0.26%).

I cut out the "Insulin" (twenty units daily) for one week and this resulted in 0.21%. The "Insulin" and prickly pear were then continued and sugar was 0.19% again.

The prickly pear was discontinued for one week: result sugar 0.26%, prickly pear added again with "Insulin" and blood sugar 0.212%. This test was done on March 12, 1925, and is as far as I have gone with this case. This patient reports feeling very much better under the treatment.

Yours, etc.,

W. G. SHELLSHEAR.

Wallsend, New South Wales.
March 14, 1925.

Books Received.

AN INTRODUCTION TO SCHOOL MEDICINE, by H. Leslie Cronk, M.A., M.D., D.P.H. (Cantab.); 1925. London: H. K. Lewis & Company, Limited. Crown 8vo., ppp. x. + 236. Price: 7s. 6d. net.

AN X-RAY ATLAS OF THE NORMAL AND ABNORMAL STRUCTURES OF THE BODY, by Archibald McKendrick, F.R.C.S. (Edin.), D.P.H., F.R.S.E., and Charles R. Whittaker, F.R.C.S. (Edin.), F.R.S.E.; 1925. Edinburgh: E. & S. Livingstone; Demy 4to., pp. xvi. + 222. Price: 25s. net.

Medical Appointments.

Dr. Clive Reginald Alexander (B.M.A.) has been appointed Government Officer at Uralla, New South Wales.

* * * *

Dr. Keith Gardner Kerr (B.M.A.) has been appointed Government Medical Officer at Finley, New South Wales.

* * * *

The undermentioned have been appointed members of the Nurses' Registration Board of New South Wales: Dr. Robert Dick (B.M.A.), Dr. Eric Sinclair (B.M.A.), Dr. John Cadell Windeyer (B.M.A.) and Dr. Reginald Jeffrey Millard (B.M.A.).

* * * *

Dr. Paul Hopkins (B.M.A.) has been appointed Resident Medical Officer at the Mackay District Hospital, Queensland.

* * * *

Dr. Oliver Leitch (B.M.A.) has been appointed by His Excellency the Governor of South Australia in Council to be an Honorary Commissioner to inquire into and report upon the incidence of plumbism and the measures taken for its prevention in Great Britain.

* * * *

Dr. James Garnet Sleeman (B.M.A.) has been appointed Medical Superintendent of the Adelaide Hospital and Inspector-General of Hospitals Department on probation.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

QUEEN VICTORIA HOSPITAL, MELBOURNE: Medical Superintendent.

ROYAL NORTH SHORE HOSPITAL OF SYDNEY: Honorary Physicians (2).

THE PUBLIC SERVICE BOARD, N.S.W.: Medical Officer for Broken Hill District.

SYDNEY HOSPITAL: Honorary Medical Staff.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited Mutual National Provident Club. National Provident Association.
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane.	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Honorary Secretary, 12, North Terrace, Adelaide.	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

MAR. 31.—New South Wales Branch, B.M.A.: Council.
MAR. 31.—Section of Hygiene and Preventive Medicine, New South Wales Branch, B.M.A.
APR. 1.—Victorian Branch, B.M.A.: Branch.
APR. 7.—Tasmanian Branch, B.M.A.: Council.
APR. 9.—New South Wales Branch, B.M.A.: Clinical Meeting.
APR. 9.—Victorian Branch, B.M.A.: Council.
APR. 14.—New South Wales Branch, B.M.A.: Ethics Committee.
APR. 14.—Tasmanian Branch, B.M.A.: Branch.
APR. 16.—Section of Neurology and Psychiatry, New South Wales Branch, B.M.A.
APR. 21.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
APR. 21.—Tasmanian Branch, B.M.A.: Council.
APR. 22.—Victorian Branch, B.M.A.: Council.
APR. 24.—Queensland Branch, B.M.A.: Council.
APR. 24.—Eastern Suburbs Medical Association, New South Wales.
APR. 28.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
APR. 30.—New South Wales Branch, B.M.A.: Branch.
MAY 1.—Queensland Branch, B.M.A.: Branch.
MAY 5.—Tasmanian Branch, B.M.A.: Council.
MAY 6.—Victorian Branch, B.M.A.: Branch.
MAY 8.—Queensland Branch, B.M.A.: Council.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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